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of Retardation and Deviation

Editor:
LIGHTNER WITMER, Ph.D.,
University of Pennsylvania

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Retardation and deviation *would not attract much interest simply as abnormal conditions. It is their curative treatment—the processes through which the abnormal may be made to develop into the normal—that inspires the present effort of educator, psychologist and physician.*

The Science *which treats of the restoration of the retardate and the deviate to normality has been in want of a name.*

The Psychological Clinic *proposes for this science the name* **ORTHOGENICS,** *and will employ this term to define the journal's scope and object.*

While **Orthogenics** *concerns itself primarily with the causes and treatment of retardation and deviation, it is by definition the* **science of normal development,** *and comprehends within its scope all the conditions which facilitate, conserve, or obstruct the normal development of mind and body.*

CONTENTS OF VOL. VI.

ARTICLES.

Reviews and Criticism.

News and Comment.

The Psychological Clinic

Vol. VI. No. 1. March 15, 1912.

SOME RESULTS OF STANDARD TESTS.

By D. C. Bliss,

Superintendent of Schools, Elmira, N. Y.

The keynote of successful business to-day is accurate knowledge of detail applied in such a manner as to eliminate needless waste. The margin between profit and loss is determined by the skill of the manager in effecting small savings. Science applied to the meat packing industry showed that a very good profit could be made by utilizing what had formerly been considered useless. In the business world nothing is left to chance, no important action is based upon vague opinion or untested theory. Exact knowledge must first be obtained. Seven out of ten business failures are due to the lack of this knowledge and there is no reason to suppose that a different ratio exists in education.

The business man, judging education by his own standards, has expressed his growing dissatisfaction with the products of the schools. The insistence of his demands for a balance sheet has finally brought about an increasing conviction among school men that in some degree, at least, it is possible to measure the results of teaching. Here and there experimental work is in progress designed to fix standards and to evolve some common measure of accomplishment.

In 1902-1904, Dr. J. M. Rice, published in *The Forum* the results of his extensive examination of several thousand children in arithmetic, spelling and composition. His conclusions were startling, to say the least. It was a shock to champions of mechanical drill to find that there was no connection whatever between the number of minutes given to spelling every week and the ability of the child to spell common words correctly. He found that classes to whom spelling was taught incidentally were just as efficient as those having forty minutes of daily drill. Equally clear was the fact that extra time given to arithmetic and composition did not necessarily mean added efficiency. Quality of teaching appeared to be the determining factor. The conclusion is inevitable that it is the business of the superintendent to find out what classrooms are failing to produce the results expected

of them. This means the application of the business principle of checking results to determine at what points waste is going on, and then its elimination. The chief difficulty has been the absence of a common measure. Teachers have rated work as *excellent, good,* or *poor;* but these terms meant little, for they depended entirely upon the standard in the teacher's mind. What was good in the estimation of one teacher might be poor in the estimation of another. Progress is being made, however, in determining this common measure. At the present time a large number of superintendents and principals are co-operating with Mr. S. A. Courtis of the Home and Day School in Detroit, in determining standard scores in arithmetic. That there is need of such standards is evident from the fact that in a single grade he has found "all levels of ability from those of the primary grades to that of the senior class in the high school department."

One of the most significant pieces of work thus far accomplished is that of Dr. Thorndike in establishing a scale for measuring handwriting. It is a question if a coarser scale than his, which is graded from 1 to 20, would not accomplish just as satisfactory results and at the same time be easier of application. The practical scale must be one so simple that the busy superintendent or principal can use it without spending more time than he can afford.

Dr. Thorndike published in *The Journal of Educational Psychology* for September, 1911, his article dealing with a scale of merit in English writing. Other articles have appeared in the educational magazines from time to time discussing the possibility of establishing standards of school work and suggesting methods for determining them. Thus far these investigations have been conducted for the purpose of determining standards of measurement, but no attempt has been made to apply the standards to the actual work of the school. Superintendents and principals are now asking themselves the question: Is it feasible to make use of standard tests in my school in such a manner as to determine relative classroom efficiency?

For some years the writer has used the reproduction story as a means of determining the efficiency of classroom instruction and drill in English composition. Since the records of the test have been carefully kept and it has been employed in three separate school systems with results closely similar, he feels that he is in a position to know something of the effect of attempting to apply the standard test in actual school practice. In general the plan is to give a reproduction story test soon after the opening of school

in September, and to follow this by a similar test just before the same pupils are promoted. The latter would be given in February under the half year promotion plan, or in May if the promotion is yearly. A comparison of the two class averages, then, will determine the progress of the class. The examinations are not for the purpose of finding out how much the individual knows. They are not even intended to ascertain how high a mark the class collectively can reach. The only point of interest is how much progress the class as a whole has made. Our testing must be removed as far as possible from the stereotyped examination which has been responsible for so much cramming and mechanical drill. The test must be framed in such a manner that these are of no avail. It must be based wholly upon power to do and not upon ability to tell. Three stories of varying degree of difficulty serve for the test, one for the third and fourth grades, one for the fifth and sixth grades and one for the seventh and eighth grades. While one story serves for two grades, a higher standard is naturally expected of the more advanced class.

Some difficulty is experienced in finding suitable stories. They must be interesting, neither too long nor too short, and with two or more well defined points closely enough related to be remembered easily. The story should never be read to the class by the teacher. In a small school system the reading should be done by the superintendent himself. If the number of classrooms does not allow this, then the principals of the various buildings must do it under specific directions from the office.

These are the usual directions:

To the Principal:

Will you read the enclosed story to the third and fourth grades in your building next ———— observing these directions:

(a) Read the story but once and answer no questions.
(b) Let the class take as much time as they need, but allow no needless delay.
(c) Remain in the room until the writing is completed.
(d) Say nothing to make the class think the test is of any unusual character.
(e) Mark the set of papers with the name of the teacher, school, and grade, and send to the office at once.

———— ———— *Superintendent.*

Under this method the personal influence of the teacher in no degree affects the excellence of the composition. The resulting papers represent what the class is able to do unaided.

The stories used for the two successive tests must be as nearly of the same degree of difficulty as is possible. Some of the stories used for the third and fourth grades are: The Dog and his Shadow, The Two Goats, Dick and his Cat, The Grasshopper and the Ant, The Cat and the Monkey. For the fifth and sixth grades: Two Men and the Bear, The Wolf and his Two Dinners, Cornelia's Jewels. For the seventh and eighth grades: The School of Stanz, The Story of Valentine.

The papers are taken directly from the classroom to the office of the superintendent where they are read and rated. It would be an endless task to do this by marking each paper in per cents, but it is comparatively easy if the same plan is followed that was used by Dr. Rice. Five standard papers are selected and numbered from one to five in the order of their excellence. Number one is lowest in the scale and number five the highest. These numbers are separated by equal intervals. To read a set of papers, placing each in the pile representing the proper standard, is a comparatively simple matter. Dr. Rice's system of estimating rests on the fact that any written composition makes a definite impression, judged as a whole. Of a picture we say instinctively that it is good, or passable, or bad, without stopping to analyze it as to proportion, perspective, choice and application of color, or other details. Until one has actually tried the experiment with thousands of papers, it is difficult to believe that English work may be treated in the same way—judged by the swift impression made by the paper as a whole. In fact, it is sometimes unnecessary to read the entire paper. Experience shows that the majority of papers fall without question into their proper class. A few are on the border line between two classes, but even these make little trouble in determining class averages. By the law of probabilities there is an equal chance of a paper's being placed in the higher or the lower group. As a result the class average remains constant in spite of these doubtful papers. The truth of this assumption has been established by having a set of papers rated by two or even three readers. As a rule the results vary by a small fraction, the maximum variation found thus far being only one point. Years of trial, and comparison of the rating given the same sets of themes by different readers, show that the personal equation, which on the surface would seem to be a largely determining factor, does not enter into the matter. It is this established fact that a theme may be judged as a whole, which renders unnecessary detailed scrutiny or the use of any pencil marks, whether of cor-

rection or as an aid in averaging results, and so effects the great saving of time. Because of this time-saving it is possible to carry on extensive tests, the result of which is exact knowledge of the work being done in every room in the city.

Incidentally it may be mentioned that these papers, representing the work of the children entirely free from the teacher's influence, throw many side-lights on methods and discipline. Several times it has been proved that a reader who has seen neither class nor teacher can state from one glance through a set of papers, exactly the conditions which one who frequently visits that room knows to exist there. The papers disclose whether the class has formed habits of attention, obedience to directions (once given), clear thought and individuality of expression, and the use of the right method of penmanship outside of the period allotted to that study, or whether it has been allowed to go on in haphazard fashion, doing work that is "nearly right" in content and untidy in appearance, restricting the use of the knowledge gained in each lesson to the time when that subject is the main topic of consideration, and perhaps has been trained to one accurate, but uninteresting and unvarying form of expression. The test at the end of the year, contrasted with the one at the beginning, makes evident the teacher's ability and willingness to accept suggestions and incorporate them into her teaching, or her inclination to go on in the old way because her mental capacity is limited or improvement would involve too much exertion.

It is, of course, necessary if the number of papers necessitates two readers that they should have worked together long enough to insure a thorough harmony of understanding of the standards used. The possibility of variation in the results obtained by different readers is, however, wholly immaterial. The important consideration is that the standard once established shall be kept constant and this can usually be done by having one person do all the reading. The chief value of this plan of testing is the opportunity it affords for making comparison of grade with grade within the same system; hence the necessity of a constant standard.

In rating the papers several factors are taken into consideration. Spelling, capitalization, punctuation, and good sentence structure are essential characteristics. Originality receives due credit, often outweighing an exact verbal reproduction, which receives a low rating.

If a paper is to be placed in grade five it must be mechanically perfect, and possess a distinctive style. It must show that the

pupil is able to express ideas in his own language, to do it without mistakes, and to impress it with his own individuality. Grade five represents a quality of English which may not be reached by more than one child in five hundred. Number one group includes all papers unintelligible either from lack of ability to express ideas or ignorance of the tools of expression, or if not absolutely unintelligible yet so poor as to show that the child has not grasped even the rudiments of English composition. Papers in this group are often referred to as "impossible" or "not passable".

The scheme of rating is best illustrated by giving two original stories and a representative paper in each of the five groups.

Grades Three and Four.

THE CAT AND THE MONKEY.

(Original)

A cat and a monkey saw some nuts roasting in the fire. The monkey told the cat to pull them out with her paw. She got one out, but the fire hurt her.

The monkey told her how clever she was, so she kept on trying till all the nuts were pulled out. Then she turned around to show the monkey how her paw was burned, and found him eating the last nut.

Standard Five.

A cat and a monkey were sitting in front of a fire-place where some nuts were roasting. "Put your paw in and pull some of those nuts out," said the monkey. Without thinking of anything but the nut, the cat did so and then cried out as the fire burned her. "Oh never mind a little pain," said the monkey. "You are very clever. Try another." So the cat kept on pulling out one after another till she had them all. Then she turned around to show the monkey her poor burned paw and found the greedy animal eating the last nut.

Standard Four

A cat and a monkey saw some nuts roasting in the ashes. The monkey said, "Put your paw in and pull them out." The cat did so, and got one out. The monkey told her how clever she was. She got them all out, and turned around to show the monkey how she had burned her paw. She saw the monkey eating the last nut.

Standard Three

Once there was a cat and a monkey, and they saw some nuts roasting in a fire. The monkey said", if you will put your paw

in the fire we will have some nuts, to eat. So the cat did so, when the cat was getting the last nut, the monkey had eat all the nuts up. And told her how clever she was.

Standard Two.

One day a cat and a monkey saw some nuts roasting in the fire. So he said to the cat. She sould pout in her parw and take out the nuts. So she pout in her parw and took out one nut. And she brun her parw. The monkey said she was doing well. So she went on and on until she got all the nuts out. And then she show him her parw how brun her.

Standard One.

The cat was geting nut out of over was roasting. The cat was clever and was geting nut of over and the cat pas got brun. And he care get nut of the over. At at he got the last one the cat shone the monkey his brun pass.

THE OWL AND THE GRASSHOPPER.

(Original)

A great white owl was sitting one day on her perch in a hollow tree. She was trying to get her afternoon nap. But a noisy grasshopper sang his song over and over again. The owl could not sleep. Finally the owl said, "Won't you keep quiet or else go away? I want to take a nap." But the grasshopper said, "I have as much right to sing as you have to sleep. Besides, you have never done anything for me."

Soon the owl called out to the grasshopper, "Well, you have really a beautiful voice. Now that I am awake I don't wonder that you love to sing. Won't you let me offer you some of the delicious honey that I have here?" The silly grasshopper at once jumped up into the tree. The owl caught him in her sharp claws and then finished her nap in peace.

Standard Five.

One day a big white owl sat on her perch in a hollow tree, trying to take a nap. She could not, for a naughty little grasshopper kept singing his song over and over. The owl got so tired of hearing the song over so many times that she said, "Mr. Grasshopper, won't you keep still? I want to get a nap." "Well," said Mr. Grasshopper, "I have just as much right to sing as you have to sleep." Se he kept on singing. Mrs. Owl said to herself, "I will fix him." So she said, "Now that I am awake you may sing all you wish. Oh, say Mr. Grasshopper," she added, "I have some fine honey up here. Won't you come up and help me eat it?"

The foolish grasshopper hopped up into the tree and the owl pounced upon him, and that was the end of the grasshopper.

Standard Four.

A great owl was just going to take her nap, when a noisy grasshopper came up. He sang his song over and over again. At last the owl said, "Won't you stop singing till I have had my nap?" The grashopper answered, "I have just as much right to sing as you have to sleep. Besides you have done nothing for me." The owl said, "You can sing as long as I am awake. Won't you come up and have some of my delicious honey?" The silly grasshopper jumped up in the tree. The owl snatched him with her sharp claws and had her nap in peace.

Standard Three.

One day an great owl was sitting in a hole in a tree. She was trying to take her afternoon nap—But a grasshopper singing. He kept singing the same song over and over again. The owl got tired of listing to the same thing over and she said, "why don't you stop that song" "how do you expect any one to sleep." The grasshopper said, "I guess I got just musch right to sing as you have to sleep." So the owl said, "come here and I will give you some honey." The grasshopper the silly little thing went up and the owl got him and toke him in his claws and the owl toke his nap.

Standard Two.

Once upon a time a owl was trying to sleep in a tree but a nosye grasshopper would not let him. So the owl said, "You naugty thing why don't you ceep stiyl" Then said the grasshopper, "I have as much right to sing as you have too sleep." So the owl thought a while and them said, "Mr. grasshopper what a sweet voice you have. Woun't you let me offer you some of my honey. So the grasshopper junped up im to the tree but the owl snached him up and toch his nap im picae.

Standard One.

Once a owl and a Grasshopper was chirping on a tree. The grasshopper was singing. Will you not sing. I want to take a nap. Afterwill the grasshopper jumped up in the tree.

Each of the five standards is given an arbitrary value:

Standard	I— 0	
"	II— 25	points
"	III— 50	"
"	IV— 75	"
"	V—100	"

When the papers from a fourth grade, for instance, have all been read and thrown into various piles representing the different standards, it is easy to reckon the average rank for the class. If, of the papers written by thirty-six children ten fall into the worthless class, twelve into that representing standard two, seven into standard three, and seven into standard four, the corresponding figures will be 300+350+525=1175, and this, divided by thirty-six, the number in the class, gives 32.6 as the rank attained. This is a satisfactory rank, and this fact shows perhaps more clearly than anything else could, how far removed the system is from the old one of marking each paper in per cents, for in that case a class might reasonably be required to reach 75 or 80 per cent, and indeed under the old laborious method of marking the class here used as an illustration would have done so.

When the papers from each classroom have been rated on this basis a standard for each grade in the system is then fixed. There is nothing unfair to a teacher of the fourth grade, for instance, in fixing as the standard for her grade the average of all fourth grades in the city. As has been said before, the exact figure of this standard rating is immaterial. If the individual papers have been judged leniently the standard will be higher than will be the case with a more illiberal rating. *Justice to all is secured by keeping this standard constant.* Great care must be exercised at this point or the comparisons of the first rating with that of a later date will be valueless. A difference of conditions in the several classrooms will cause a considerable difference in the ratings the first time they are made, but this low initial rating has nothing to do with the progress of the class as shown by the subsequent rating. It often happens that the class with the lowest record in September will show the highest record in June. This means a high teaching efficiency. Experience has shown that drill on reproduction does not result in a high final record. The best records are made by those teachers who employ the greatest variety and adaptability in their methods of teaching. To show progress they must teach for efficiency. The reproduction is simply a measure of the capacity of the class to use language effectively, and in the last analysis this is the sole object of English teaching.

The real test of the practical value of such a plan as this is its success in actual operation. Unless it will actually work it is useless. In a Massachusetts school system, with thirty-three third grade teachers the initial test showed a city average of 8.5 points, with twenty-three classes below the requirement and eight classes above. One year later the city average was 19.2 points with

thirteen classes below the requirement and nineteen classes above. This represented an increase of 126 per cent in the level of efficiency in the third grade. With thirty fourth grades the first city average was 21 points, with thirteen teachers below the requirement and sixteen teachers above. The final test gave a city average for the fourth grade of 27.5 points with nine classes below and twenty-one above the standard. Here again is an increase in the level of efficiency of 30 per cent. But we are not obliged to depend upon a single system to demonstrate the value of the plan. The same test given in exactly the same manner was used in a New York school system with eighteen third grade classrooms. The average initial standing was 3.8 points. Fifteen rooms were below the standard and one above it. A year later the average had risen to 14.7 points, seven classes were below the standard and ten above. Here the efficiency level had risen 287 per cent. The fourth grade record was similar. The city average increased from eleven to thirty-one points, or 181 per cent. No exact figures are available from New Jersey where the same system was employed, but the general effect was the same.

In each of these school systems not only were teachers told the standards attained by their classes but the chief defects of the papers were pointed out and specific suggestions made for the improvement of the work. This was done on the theory that tests given for the information of the superintendent only and resulting in no change for the better in the classrooms are not worth the time they take. The following are typical excerpts from the criticisms and suggestions made to a number of third and fourth grade teachers. It should be kept in mind that the criticism is adapted in each case to the superintendent's knowledge of conditions under which the teacher works, so that a faithful teacher, heavily handicapped by an ill-prepared or dull class, is not discouraged by feeling herself required to achieve the impossible, but, on the other hand, a lazy or indifferent teacher is stimulated to increased effort.

"The mistakes in grammar are largely those which can best be corrected by careful attention to the language in the oral story telling and all other oral recitations. There should be much oral work for the half of the class which is below grade. This same section is inaccurate in the use of idioms."

"The lower section needs much work in spelling and the forms of words. If this section did considerable written work at the board the individual mistakes could be seen and corrected—a few at a time in order not to discourage and confuse the child."

"The children show considerable dramatic power in their ability to visualize the story, but fail in their written English." (Here follow specific suggestions regarding the remedy for errors in punctuation, spelling, and formation of letters.)

"This class shows the effect of careful teaching. The children have grasped the story. They have been taught to make clear, brief statements, to use periods and capitals, and as a whole to spell well. It is a pleasure to look over a set of papers showing so clearly that the class, as well as the teacher, takes pride in doing good work."

"The general impression given by the papers is that of carelessness and lack of clear thinking. There are several instances of repetition or of the omission of words necessary to the sense. The sentence division and construction are faulty. Correct these errors by careful attention to the oral story-telling. As a whole it is evident that the class needs hard, definite drill to fix the various things it has been taught."

"The children should not have written reproduction at present. They need work in copying and in studied and unstudied dictation. They should write at the board where their mistakes can be seen and corrected at once. Whatever they do, insist on accuracy. It is best for them to learn a few things well. Use oral reproduction until the children have enough power to write English correctly. Train them to correct oral expression and it will help the other work. They show dramatic power."

"The papers from your room show just the condition I should expect, knowing as well as I do the make-up of your class. Their lack of mental calibre appears in incoherent sentences." (Here follow specific instances of mistakes to be set right). "I would not attempt, however, to correct too many points at one time."

Of course radical improvement cannot go on indefinitely. What is certain to happen is a steady gain until the maximum efficiency has been reached. Then the city average for any grade will oscillate back and forth, advancing as the conditions in the classrooms make for greater efficiency and falling below the average with the employment of inexperienced teachers or with any cause which appears against the best interests of the school.

The figures and criticism given above are for the third and fourth grades only, but the same plan is followed for the other grades in the elementary schools. In all cases the results are substantially the same.

The method is just as applicable to spelling, penmanship, and

arithmetic as it is to English. History and geography present a problem more difficult of solution.

It may seem at first thought that the amount of time required by this plan of testing for results is so great as to render it impracticable for general use. It is true that considerable time is required, but this is not the point at issue. The real question is, does it pay? The superintendent or principal has only a given amount of available time and it is for him to invest it in such a manner as to obtain the greatest returns.

Experience indicates that the superintendent with a school system made up of fifty or sixty classrooms can give these tests and do all the reading unaided. The pressure of routine work makes it burdensome if the rooms are much in excess of this number. He must then have some assistance. A little care in the selection of the clerk who is usually employed in the office will provide the necessary help. When there are three or four hundred teachers a special reader is necessary, but it will be found to be a most profitable investment so far as the good of the schools is concerned. No complications from the employment of some one to do this reading need be feared. The standard is not one established by the reader's opinion, and she has no responsibility for it. Her part is to determine in what degree the papers turned over to her for reading measure up to the predetermined standard.

We often hear objections to any plan for measuring the efficiency of teaching by testing the results, on the ground that there are certain elements of good teaching which cannot be measured. We cannot measure mathematically the effect of the influence of a good woman upon boys and girls. We are utterly unable to express in figures the degree to which a manly man shapes the character of the adolescent youth. It is a significant fact, however, that those teachers who count for the most in this shaping of character are the very ones who obtain the highest results under this method of testing. There is no inconsistency between strength of character and efficiency. Character development is an essential part of education but it is not all of it. It must be present as a supplement of efficiency.

In the past we have placed emphasis upon what the teacher knows and the methods she employs, without regard to the results she obtains. In the future we shall give no less attention to knowledge and method, but we shall include results. We must in the end come to the fundamental business principle in education that the efficiency of the teacher must be measured in terms of what the pupil can do.

SEVEN YEARS WITH UNUSUALLY GIFTED PUPILS.

By Frederick E. Downes, Pd.D.,

Superintendent of Schools, Harrisburg, Pa.

The Harrisburg public school system continues to hold to the old nine-year elementary course. It has under consideration changing to an eight-year course, primarily for the sake of uniformity and as an aid in compiling statistical and other reports and records, which as a rule take the universality of an eight-year elementary course for granted. I am not sure whether we shall allow these superficial considerations eventually to outweigh higher ones or not.

For a number of years the average age of high school graduation in Harrisburg has been less than eighteen and one-half years, which is practically the same as in other cities of the country. This would seem to indicate that with a flexible system of grading and promotion, the more extensive elementary course is after all not a matter of much consequence, so far as actual time saving is concerned. Furthermore it may be taken for granted that as a general rule the longer the course is, the smaller will be the percentage of retardation and the greater the percentage of cases of rapid advancement, and the shorter the course is, the greater will be the percentage of retardation and the smaller the percentage of cases of rapid advancement.

A nine-year course below the high school presents at least one important advantage, namely, encouragement for the slow pupil. The pupil of below average ability, as a rule, requires at least nine years, and frequently longer, to complete the standard eight-year course of study. This means that many must fail of promotion at one time or another, become discouraged, and drop out before reaching the high school. It would be difficult to estimate the indirect consequences of Birmingham's (Alabama) 65 per cent of retardation, or Kansas City's (Missouri) more than 50 per cent, both of these cities maintaining seven-year elementary courses. A slow pupil who passes through a nine-year course without failing to be promoted, is in a far better mental attitude toward school work and the world generally than is the pupil who passes through a shorter course and who fails one or more times along the way.

In this particular educational period, when so much is being

written and said of the slow or backward pupil, and when a greater attempt than ever before is being made by the school to take the slow pupil into the reckoning, it would seem proper to consider the advisability of offering a course of sufficient length to be covered by majority of his kind without the discouragement of failure, or at least to call a halt to persistent agitation to shorten still further the curriculum.

It is not my purpose here, however, to discuss the length of the school curriculum, all that has been said having been thrown in by way of preface. The burden of this article will be to show how Harrisburg, with a nine-year elementary course, has been able for a number of years to send out high school graduates of the same age as those of other cities having an eight-year or even a seven-year course.

About seven years ago it was casually discovered that as our course of study was then arranged, many pupils of the second grade and many of the sixth grade were able to complete the work prescribed for these years in considerably less than the allotted time. Teachers could not keep their pupils busy with the work of the grade. The brightest pupils of the second grade were found to be able, without unusual effort, to do the number work of the third grade, and, after a quick mastery of the additional phonetic symbols, to be able to read in the third reader as readily as in the second. In the sixth grade, much of the work of the first half-year in the advanced textbooks in arithmetic, geography, etc., being substantially a review of the work already covered in the elementary texts of previous years, it was found that the more gifted pupils were covering the course without apparent interest or serious application. The average pupil had plenty to do, but those of above average ability had much unused time at their disposal.

Accordingly, it was suggested that where the number of bright pupils warranted, teachers might divide their classes into fast and slow sections and allow the pupils of the fast sections to proceed as rapidly as their abilities permitted, due consideration being given to health. In many instances, where there were not enough exceptional pupils to form a section of reasonable size, teachers were encouraged to give such pupils individual attention, both during and after school hours, to prescribe advanced home study, and to enlist the interest of parents in the project of time saving for the pupil. Often intensive group teaching was resorted to during the recess period or for a half-hour or so after school.

As a result of this effort, hundreds of pupils during that year and succeeding years were enabled to skip grades. As many as three hundred and fifty were thus advanced in a single year. Doubtless many of them would not now be in the high school had it not been for this saving of time. Furthermore we find that as a rule these pupils are among the best students of the high school. Not only are they able to do the work successfully and to keep pace with the average student, but in the majority of cases they show the same mental superiority, in spite of the fact that they have lost a year of grade drill, in the higher school as they did in the lower.

But our course of study having been revised, thereby closing up to some extent the "gaps" of opportunity during the particular years referred to, the plan above explained has practically been abandoned. The principal objection to it is the added drain which it entails upon the vitality of the teacher. Though many teachers are willing to do the work, it is nevertheless hardly right to expect them to do it. Taking a small group of pupils away from the regular class and preparing them during extra periods in and out of school hours for a higher grade is no easy task, and sooner or later if continued year after year, is likely to have an injurious effect upon the health and efficiency of the teacher. I have in mind instances of such deleterious effects. Nor can the plan be said to be entirely fair to the large majority of pupils who are entitled to the teacher's full time and attention and her best mental and physical vigor.

In September, 1910, with the sanction of the School Board, exceptionally gifted pupils were provided for by the opening of special schools exclusively devoted to their instruction. These schools, or classes, were organized in buildings located as nearly as possible in the geographical centres of the districts from which the pupils were drawn. Two schools of this kind were maintained during the year 1910-1911, and three were opened in the fall of 1911, and are in operation at the present time. Those organized this year are of a single grade. The pupils expect to cover the work of the eighth and ninth grades during the year and enter the high school in September next.

By the special school plan pupils may be as uniformly graded as if they were in the regular schools. Moreover, the work of the teacher is much less irksome than in schools having groups of both bright and slow pupils. It is fair to all the pupils of the room. The unusually bright pupils of a geographical district are

selected with the aid of official records, and, after parental permission has been obtained, they are assigned to the special school for double work. Some pupils have rather long distances to walk to school and a few carry their noon lunches with them; but all seem willing to endure this slight inconvenience rather than suffer the loss of a year. Our special rooms at present have an average enrolment of about thirty, and while this number is probably somewhat too large to insure the most satisfactory results, all the pupils are doing good work and all will probably succeed in their undertaking. Our special rooms last year averaged thirty-five pupils.

At the close of the last school year one of the "special school" teachers submitted a written report of the work of the year. This report was not intended for publication, but I take the liberty of reproducing a portion of it verbatim, in order that some idea of the work and success of the school from the teacher's own viewpoint may be obtained.

"It is gratifying to note some things accomplished which are necessary elements in every good school or system of education.

"First, *attendance*—A glance at the general report for the year submitted to the superintendent before the examination, will show a larger number of pupils present each day than I ever before had the pleasure of reporting. The majority had less than ten days' absence. Most of the absence was necessary, being occasioned by religious holidays of the Hebrews or by sickness.

"Secondly, *scholarship*—The percentages reported were obtained by averaging the class and test marks to find the class standing of each pupil at the end of each month. At the close of the year these resulted in twelve boys and thirteen girls attaining a grade ranging from ninety to ninety-seven per cent. The remainder of the class were all above eighty per cent.

"All seemed to appreciate the advantage of eliminating a year from the grade work. This was sufficient incentive to encourage repeated efforts to secure excellence and to remove even the semblance of drudgery.

"Thirdly, *discipline*—A busy school lacks the opportunity of being either mischievous or troublesome. It was the most orderly school I have ever taught."

The pupils of the school above reported are now in the first year of the high school. The work of the first term (one-half year) has just been completed and the results recorded. A few comparisons are both interesting and gratifying.

Those entering the high school from the above reported room numbered thirty-two pupils. Of this number, eight, or 25 per cent of the class, attained an average standing in all studies during their first half-year in the high school of between 90 and 100 per cent; and twenty-three, or 72 per cent of the class, attained an average standing of between 80 and 90 per cent. Only one general average fell below 80 per cent.

It is interesting to compare the above records with those of one of the regular classes. I have selected for this purpose a class of somewhat above average ability, as indicated by the fact that not a single member failed to pass examinations for admission to the high school. Each member of this class spent two years in doing the same work that the special class did in one. Furthermore, as a consequence of this extra time spent, their average age was considerably greater than the average age of the special class. Thirty of this particular class decided to enter the high school. Of this number six, or 20 per cent of the class, attained an average standing during their first half-year in the high school of between 90 and 100 per cent; seventeen, or 57 per cent of the class, attained an average standing of between 80 and 90 per cent; and seven attained an average standing of less than 70 per cent.

From this it will be seen that the pupils of the special school are thus far holding their own in the high school. Their superior ability has more than made up for the regular pupils' additional year of drill in preparation—more than counterbalanced greater maturity of age. After all, this is no more than might have been expected. The wonder of it—the pity of it—is that we did not see it long ago. We would not think of a strong horse and a weak horse as a good working team, or a fast horse and a slow one as a good racing team. No more can we hitch school children together and have them do their best work, without consideration of their fitness to be matched.

SOME STUDIES ON SO-CALLED "ABNORMALLY INTELLIGENT" PUPILS.[1]

A. On "Abnormally Intelligent" Pupils.

By Yasusaburo Sakaki,

Imperial Education Department, and Professor of Psychiatry at the Imperial University, Tokyo, Japan

By "abnormally intelligent" pupils, those pupils are meant who are distinctly in advance of the rest of their class, as regards both mentality and personal characteristics. They are above the average and must therefore be regarded as abnormal children. In using this term we do not wish to imply that the children are necessarily pathological. Some of these abnormally advanced children maintain their high level throughout development, but others drop down to the average, or even below it, later on.

The causes of this advanced mentality differ greatly and may be classified as follows:

Group I. The actual genius, gifted with an innate and early matured intelligence of a high order, this superiority being stable throughout life.

Group II. Children of a less abnormal intelligence, but gifted with a good memory and the power of concentration; industrious and persevering by nature; healthy in body and not easily fatigued. This may be taken to be the true abnormally intelligent type.

Group III. Children who correspond to Group II in all respects but bodily health. In this respect they more nearly resemble the "nervous" type of child.

Group IV. Children whose intelligence is in no degree above the normal standard, but who are stimulated to mental exertion by environmental influences.

Group V. Children of the "precocious" type.

Group VI. So-called "nervous" children. These are easily stimulated by the spirit of competition and are readily intimidated by teachers or parents, being very sensitive to adverse criticism. This group is usually pathological, and the children generally have a "nervous" family history. They are frequently weak and anæmic.

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[1] Translated from *Int. Archiv für Schulhygiene*, by William A. Stecher, Director of Physical Education, Philadelphia, Pa.

Group VII. Children who are not well-balanced mentally and psychically. They sometimes show moral deficiency combined with a high degree of mental intelligence.

This classification is quite arbitrary, but it has often struck me that the study of pedagogy has never taken sufficient count of this large class of hyper-intelligent children, while the literature dealing with defective children is so ample as almost to be exhaustive.

Considering now in detail the above seven groups, we will first refer to the "young genius". It is very difficult to define a genius, but we may say that the famous geniuses of the world's history are, as a rule, individuals who have accomplished some original and inventive work. The claims of genius are, however, not recognized before manhood is attained, and sometimes not during life at all, so that one may not rightly call any child a genius. Many geniuses have not been conspicuous for unusual gifts during childhood, for example, Newton, Helmholtz, and many others; but other great men have shown unusual gifts at an early age, including Mozart and Raphael. Some very promising children, however, do not carry out their early promise of great mental gifts. Some geniuses, again, have some extraordinary gifts and faculties for which the age in which they live has apparently no use, and they are therefore unappreciated by society.

There seems to be some very intimate connection between genius and mental disease. According to Lowenfeld, geniuses come within two categories, the true genius and the pathological genius. Those in the former are healthy and their gifts may be termed "heaven-sent," as for instance, Washington, Confucius, Titian and Rubens. But the second order of genius is the more common and many examples could be quoted, Rousseau, De Quincey, who was an opium-eater, and Nietzsche, who died of mental disease. Napoleon, Mirabeau, Alexander the Great, Cæsar and St. Paul were all said to have been epileptics, and Goethe and Shakespeare to have suffered from some form of mental disease. Hereditary insanity and mental degeneracy can frequently be discovered in the family histories of geniuses. They themselves may escape any taint of this order, but their descendants are not always equally fortunate.

It would be superfluous to suggest any special method of education for prospective geniuses, as they are difficult to differentiate at an early stage of growth, and their number must necessarily be very limited. Precocious childen have certain

points in common with geniuses during childhood, indeed many geniuses have been precocious children. On the other hand, many precocious children fall back as they grow older and some become nervous or psychopathic during adolescence, while at best few of them maintain a place above the average.

Precocity may be either inborn or acquired, general or specialized. Inborn precocity is generally due to hereditary influences. Such subjects are frequently descended from families displaying nervous instability. Subjects showing acquired precocity vary according to environmental influences. Where the influences are harmful the effects of such precocity are very difficult to eradicate, particularly when it takes the form of sexual precocity. The term specialized precocity we apply to children of the "Wunder-kinder" type—musical infant prodigies, marvelous budding poets and painters, etc. Such children frequently run themselves out during childhood and sink back into mediocrity on attaining maturity. It is not infrequent to find cases of early suicide among this class. They are mostly of a melancholy, introspective and unsociable type. If mental disease attacks them it generally takes the form of dementia praecox with its manifold range of symptoms. Others suffer from a high degree of neurasthenia or hysteria.

All the above groups of abnormally intelligent children except Group II and Group IV show more or less strong hereditary influences, the most pronounced being the "nervous" children.

Strictly speaking, it is only the *second* group which may be regarded as absolutely free from nervous instability. It is therefore of great importance that all abnormally intelligent children should receive as careful attention and be as closely studied as mentally deficient ones.

The question arises whether all the children, normal and abnormal, should be educated together, or whether each class should be educated separately. But the abnormally intelligent children differ among themselves so greatly in type that to educate them all together by one special method would be highly inappropriate.

The most critical cases from a pathological point of view are the precocious children, and they likewise constitute a danger to their normal classmates, who may be drawn to imitate them and to expend undue mental power on hopeless tasks. Among the nervous children are often to be found hysterical subjects and children suffering from constitutional debility calling for cura-

tive measures. Moral perverts should be weeded out and sent to suitable institutions. Those children who respond to external stimulation may safely consort with the normal pupils, while those belonging to Group II are likely to have a very good influence on the rest of the class and contribute to raise its standard of mental attainment.

B. Some Results of Experimental Research Dealing with the So-called Abnormally Intelligent Pupils.

By Y. Sakaki, *Professor of Psychiatry at the Imperial University, Tokyo, Japan, and* T. Tomono, *Teacher at the Fukuoka Normal School.*

For purposes of research 79 pupils showing a quality of intelligence and deportment markedly above the average class level were selected out of 332 pupils who were distributed in 7 classes, (the entrants being excluded as unsuitable for experimental purposes). In conjunction with the teachers a very careful selection was made, special attention being paid to the individual data and domiciliary conditions.

The following pupils were the selected subjects:

High School	2nd year	7 girls
" "	1st "	6 "
Elementary School	5th & 6th years	13 boys
	4th year	14 girls
	4th "	13 pupils
	3rd "	16 "
	2nd "	10 "

The tests applied were as follows:

1. Memory test
2. Test of synthetical power
3. Filling in blanks
4. Addition method
5. Proof-correcting
6. Observation

Further information secured was as follows:

Pupil's Schedule.

Address:
Class: Age:
Domiciliary data:
Parents: if living, age and occupation:
if dead, cause of death:
Character and relation with pupil:

Bodily and mental condition:
Alcoholic:
Brothers and sisters:
Bodily and mental condition:
Social status:
Other members, grandparents, etc.:
Servants:
Locality of home and character of neighborhood:
Physical development:
Age at closure of fontanelle:
Age when teeth appeared:
Age when speech began:
Age when walking began:
Amount and nature of sleep:
State of nutrition:
Physical examination: date:
Height: Weight: Chest measurement, ordinary:
deep inspiration:
forcible expiration:
Muscular development:
Spine:
Eyes:
Ears:
Teeth:
Past diseases or injuries, date, duration, effect, etc.:
Temperament:

Conclusions:

Our experiments have convinced us that so-called abnormally intelligent pupils vary considerably in degrees of attainment and development, and that their training urgently calls for distinctive treatment on the part of the teaching body.

It is only by careful examination that the children can be correctly diagnosed and classified:

Treatment:

Our researches have led us to the conclusion that each group requires different handling, and that the appropriate method can be arrived at only after intimate knowledge of the typical characteristics of each class. We have found the following qualities to be fairly typical of each respective group:—

Group II. The children are remarkable for their sound mental development, their good physique, and their low degree of fatigue. They possess aptitude for learning, keen intuitions and

good memories. They delight in active games and are of a bright temperament. They are often favorites with their classmates and loved and respected by their teachers. Unfortunately, too much success of an easy kind sometimes acts deleteriously and they become arrogant and easily contented with the results of their efforts. This is partly the outcome of the pernicious system of class teaching, which makes it difficult for teachers to individualize the characters and aptitudes of their pupils. Present-day textbooks also leave much to be desired as they presuppose a rigid standard of attainment for all the children in one class.

Another type of child in this group is less lovable. He is apt to be aggressive and to take nothing on trust. He adopts a critical and unbending attitude towards his masters and teachers and a repellent and unsociable one towards his classmates. This type of child is exceedingly difficult to manage, and the excellent material that is in him will have no chance of developing in the hands of a weak or irritable teacher. It means everything to such a pupil that the teacher should succeed in gaining his respect and confidence, and in establishing friendly personal relations with him.

Group III. These are children who have better mental than physical development. Such children require judicious handling both from parents and teachers owing to the want of harmony in their development.

They have an active mental capacity and are often ambitious and keenly interested in their studies. Their physical disability is therefore apt to prey on their minds, entailing in many cases serious, if not fatal, consequences. They should not be overstimulated and over-driven or spurred on to increased exertions by unheeding teachers, but rather retarded in their studies while everything should be done to improve their general health. They are often anæmic and undersized and languid in their movements. They are generally gentle of disposition and popular with their teachers and their classmates.

Group IV. These children are essentially normal children, but re-act to urging and stimulating on the part of parents and teachers. They cannot, however, long maintain the higher level due to the stimulus applied. It is a very grave mistake to adopt forcing methods of education for such children, as such methods are likely to be productive of morbid results both to body and mind. Unfortunately, this mistake is very often committed both by parents and teachers who little realize the harm they are doing.

Group V. These are the precocious children. The precocity may be either innate or the result of environment. It may be general or directed into some special channel. It appears to us that precocity in the majority of cases is the result of early social environment. Generally speaking, precocious children have their reasoning faculty and their will prematurely developed. They are advanced in action, speech and thought and are not childlike in manner. Frequently, the cause lies in early association with adults and in the lack of playfellows of their own age. Precocity is to be deplored and by no means to be fostered. Unfortunately there is a tendency to encourage it, both in the home and in the school. Such children are often brought into prominent notice and shown off with pride to neighbors and acquaintances as miniature men and women. The contrast between the child who enters the school straight from home and the child who comes to the school from the kindergarten is often very marked. When precocity is discovered every effort should be made to counteract it, particularly when the children approach the age of puberty.

Group VI. This group includes, in addition to the pathologically "nervous" child, the constitutionally timid child, and those of wild and daring temperaments. All these exhibit a strain of mental disease, either inborn or acquired. With such children environmental conditions are of profound importance, and no class stands in greater need of discriminative handling and teaching if their degree of morbidness is to be diminished instead of augmented.

Group VII. Children with unequal mental and physical development are often well-developed from the purely scholastic point of view but are deficient in feeling and in will. They are often of a cruel, heartless disposition, quarrelsome and tricky. They have been known to steal for the love of stealing, and, though not deliberately wicked, to commit sins on the impulse of the moment, regretting the action immediately but employing falsehood in order to escape unpleasant consequences. Such children should be very carefully and gently dealt with, but it is not wise to allow them to associate with other children, to whom their example may be a source of danger.

From all the foregoing it would appear that urgent necessity exists for the study of the characters and mental qualities of the individual children comprising a school class. It is only by individualization that the best in each child can be brought out,

the evil tendencies repressed, and the weaknesses counteracted; and to do the best for each individual child, taking all factors into consideration, is the aim of all true education.

Summary:

While much has been written about the physically defective and the mentally deficient school child, the abnormally intelligent child has had little attention devoted to his special education. I have endeavored to arrive at some trustworthy data as to the causes and varieties of abnormal intelligence in children and to draw from these data some conclusions as to the treatment appropriate to each type. With this purpose in view, I examined all the children in the large normal school at Fukuoka in Japan, in which work I was assisted by Mr. Tomoziro Tomono, who is attached to the school in question. All the children showing an advanced degree of intelligence were set apart for special investigation. We found their number to be 79 out of 332. These selected children were classified according to definite types into seven groups and were made the subjects of a series of tests for mental capacity, and the results were tabulated. The normal children were also tested in the same manner and the results compared with those derived from the abnormal children. We found that only one class of abnormally intelligent children was perfectly free from any pathological taint, and that these were the only children who possessed stability of nerve-power and who exhibited a uniformly progressive mental and physical development. These we have called the true cases of abnormal intelligence, the others being children of the "nervous" type, precocious children, children mentally advanced but deficient in physique, children who can be spurred to mental attainments above the average through external stimulation, but who are not able to maintain this level for any length of time, and, finally children with remarkably good mental capacity who are lacking in feeling and in will. Our experiments and their results served to convince us that there is urgent need for reform in the present system of class-making, for this system renders it difficult to differentiate individual children and consequently those who stand most in need of judicious and expert handling are neither recognized as such nor likely to receive the training and education adapted to their special requirements.

REVIEWS AND CRITICISM.

The Way with the Nerves. By Joseph Collins, M.D. New York: G. P. Putnam's Sons, 1911, pp. 313.

Dr. Joseph Collins is a distinguished neurologist, and the wide experience he has necessarily had during twenty-five years' practice in the treatment of nervous diseases makes anything he may have to say on the subject particularly valuable. Dr. Collins's book, however, is written more for the layman than for the physician, as much for the healthy as for the sick, and most of all, perhaps, for the student of human nature. It is written in the form of letters, intimate, self-revealing letters from the patient, and very understanding, sane, frank and helpful replies from the physician. The ailments treated include sick headache, neurasthenia, psychasthenia, epilepsy, depression, hysteria, dipsomania, dual personality, and mental retardation in children. Those who have strong convictions on the moderate or immoderate use of alcohol will be especially interested in the letters treating of this subject.

Dr. Collin's ability to put himself in the patient's place and sympathize with his point of view is as unusual as it is interesting, and in none of the letters is this more noticeable than in the first one in the volume, written apparently by a sufferer from migraine, who has had many physicians, experiences and disappointments, but who, through it all, has retained her sense of humor.

That the author is also keenly alive to certain flaws, foibles, and mannerisms on the part of his own profession, is amusingly shown in the letters on the "Bedside Manner."

The letters dealing with the ill effects upon the human being of idleness and riches gives emphasis to what we all know in a vague way but which we are apt to smooth over and forget. Dr. Collins gives an instance of the idle rich woman suffering from ennui, and the idle rich young man who becomes a victim to alcoholism.

If the average reader has been lucky enough to escape any or all of the nervous and mental diseases described in this book, he is sure to have a relative or friend who has been less fortunate. As Dr. Collins says in his preface, "The ordinary individual has an intense interest in all that concerns his health," and he might add, "or the health of his friends and family." There is nothing which so arouses mutual interest and sympathy as a similarity of symptoms or remedies. I remember a sudden and enthusiastic intimacy which sprang up between two women whose tasts and beliefs were as opposite as the poles—merely because they had both been put on a strict diet. The discussion of those two diets, where they differed and where they agreed, meant more to these two women at that time than pictures and poetry and the music of the

spheres. Even without the other excellent qualities of the work, this extremely human appeal is bound to obtain for Dr. Collins's book a wide and deserved popularity.

E. R. W.

NEWS AND COMMENT.

Progressive School Administration in Philadelphia.

Readers of THE PSYCHOLOGICAL CLINIC will be interested in the substance of Dr. Brumbaugh's report, issued February 13th, as he has some new and valuable suggestions to make.

After urging higher salaries for teachers, he makes the unique suggestion for a Sabbatical year for the teachers of Philadelphia, one year in seven to be given each teacher for travel and study, on part pay, for the improvement of the school staff and standards.

When urging a larger amount of industrial training for our schools, which in his mind is directly parallel with the plan of the Public Education Association for Vocational Guidance, the Superintendent makes the following pleas which we might well make our slogan for the year: "We are coming to the point in our civilization where we regard the public school not only as a training place for citizenship in the republic, but as a place for the equipment of the individual for the largest possible earning capacity in the community," and further, "We are now expending such a large amount of money upon education that it would be economy to spend more in order that we might secure such an increased equipment on the material side and such an increased efficiency on the spiritual side as to make it possible to realize more nearly the type of efficiency which the State and the community alike demand at the hands of the school."

Not only does Dr. Brumbaugh enter a strong plea for the development of social centers, officially under the Board of Education, and the further enlargement of the facilities of the evening schools, which are in his mind the continuation schools of Philadelphia, but he makes a definite *request* as follows: "The social centers, the evening schools, and public lectures, are closely related in general aims and purposes, and should be made to function so that all may be helped by each and each by all. This development of the system can be best accomplished by placing all these activities in charge of a competent assistant under the general direction of the Department of Superintendence."

The report shows 30 disciplinary classes for 1911, with an enrolment of 600, and 45 backward classes, with an enrolment of 799. "While these figures show a comparatively rapid growth of special classes (an increase of about 30 per cent for the year), the number provided is still inadequate." In this regard Dr. Brumbaugh makes three *definite requests:* (a) "A residential school of the industrial type, intermediate between the special class and the institutions to which juvenile offenders are committed by the courts, is sadly needed." (b) There should be appointed "an expert in charge of all special classes,

whose whole time could be devoted to planning and co-ordinating the work of these classes and to assisting and directing the teachers. The work is so important and is becoming so large that sympathetic and helpful supervision is an economic necessity." (c) A plea which must touch the sympathy of all, which follows the statement that 1540 children of school age are known to be out of school because of blindness, deafness, or some crippled or impaired physical condition. The need for types of special classes that may meet these cases is definitely stated.

JAMES S. HIATT,
Secretary Public Education Association.

Special Classes at the University of Pennsylvania in 1912.

The Department of Psychology at the University of Pennsylvania is now perfecting the organization of two special classes to be conducted during the summer of 1912. One class will be composed of fifteen backward children, the other of about the same number of exceptionally bright children, and they will be taught by three of the best teachers of such classes in the country. Students in psychology at the University of Pennsylvania Summer School of 1912 will have the opportunity to register for observation of the special classes. They will be admitted to the class rooms at a certain hour every day, and will be taught how to observe. In the afternoon a round table discussion will be held under the direct guidance of Professor Lightner Witmer, assisted by the teachers of the special classes.

Those who attended the observation course last summer under Miss Elizabeth Farrell will remember how profitable the round table discussions were. They will be glad to hear that a book has just been published called, "The Special Class for Backward Children, an educational experiment conducted for the instruction of teachers and other students of child welfare by the Psychological Laboratory and Clinic of the University of Pennsylvania," reported by Lightner Witmer, Ph.D. The volume contains, among other things, a complete account of the organization and equipment of this model special class, a clinical study of the children attending it, their bodily and mental condition, home life, nutrition, and the changes made in them by six weeks of good care and teaching. Miss Farrell contributes two chapters, one of which is a verbatim report of her remarks at the round table, and Professor Witmer in the concluding chapter interprets the significance of psychological training for the teacher. The book is most fully illustrated, and gives an adequate idea of the work accomplished in 1911, which it is confidently hoped will be advanced and improved upon in 1912.

A prospectus announcing the courses in psychology for 1912, and containing illustrations of the Psychological Laboratory and Clinic, many of which have never before been published, is being printed and may be had upon application to Professor E. B. Twitmyer, Laboratory of Psychology, College Hall, University of Pennsylvania, West Philadelphia, Pa.

The Psychological Clinic

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THE SCHOOL FEEDING MOVEMENT.

By Louise Stevens Bryant,

In Charge of Social Work, Psychological Clinic, University of Pennsylvania.

Three years ago the author of a German book on school feeding opened her discussion of the movement in other countries with the remark that she would begin with the United States, as so little was done there. Since then the number of cities having begun the practical experiment of furnishing lunches in elementary schools has grown from three to thirty. Moreover, the work is under consideration in about thirty other cities. Judging by the rate of expansion of analogous activities in the socialization of public schools, such as medical inspection and open air schools, it seems safe to assume that in another year the present number of cities with school feeding will be trebled. Obviously the movement needs no propaganda. But it does need a basis of correct information and for its workers the control of free discussion, comparison and mutual help if statistics are not to outrun the development of technique and efficient administration. This number of The Psychological Clinic has been planned as a contribution to help meet these basic needs.

Early Beginnings.

The provision of meals in the public elementary schools is neither new nor rare. The very first provision of which we have any record was made in Munich in 1790, when municipal soup kitchens were started as part of the international campaign against vagrancy initiated by Count Rumford. The kitchens were designed to meet the needs of the people of all ages, and from the start the schools were encouraged to send groups of children to them for a warm meal at noon, for which the children paid or not as they were able. This work, which antedated compulsory education, was unorganized for a long time, but it was never discontinued, and in the seventies the obligation of providing meals was put upon the school authorities. Now there is a municipal ordinance in Munich requiring that every new school house shall have a kitchen and dining-room. Begun thus, the school feeding movement has

spread throughout the German Empire until now it is national in scope and about one-half of the cities contribute to support wholly or in part school breakfasts or dinners.

School feeding in France began in 1849 when the National Guard in the Second District of Paris presented to the city the unexpended balance in their treasury with the request that it be used to help poor children get a schooling. One of the first uses of this money, which was increased by other contributions, was to furnish a warm dinner at noon to the poorest children of the district. This was the beginning of the *Caisses des Ecoles,* or school funds, which in 1882, at the time of the passage of the compulsory education act in France, were made obligatory throughout the country. The purpose of the school fund was to increase the efficiency of the school system in any way the local authorities might see fit—to aid, for example, in medical inspection, to finance vacation colonies and school excursions, to provide scholarships and prizes for brilliant children. But for the most part, the "School Funds" have been used in maintaining the *Cantines Scolaires* or school restaurants that are now universal in France.

From the beginning the cantines have been real restaurants where all children may come and buy warm meals, and only in exceptional cases are the meals given free. In the large cities particularly, care is taken that no visible distinction shall be made between the children paying and those not paying, this being assured by the simple device of having each child pass through a little box office to buy his meal ticket. When a child claims to be unable to pay, he is given the ticket, but his name and address are noted. Immediately a school officer visits the family, and finds out whether the parents are able to pay regularly for their child's meal. If so, they are forced to pay; if not, they are furnished with tickets for as long a period as may be necessary. In any case the child is never made to feel that he is an object of "charity" in receiving meals any more than he is in being educated or medically "inspected". This practice, which illustrates the instinctive delicacy of feeling among the French people, has always been commended though not always followed in other countries.

The founder of the school feeding in England was Victor Hugo, who in the early sixties provided warm meals in his own house in Guernsey for the children attending a nearby school, and so gave the initial impetus which led to the establishment in London in 1866 of "The Destitute Children's Dinner Society." During the next forty years similar charitable societies were

formed, until in 1905, when the Provision of Meals Act was under consideration, there were in London alone no less than 158 voluntary organizations for school feeding and a total of 360 in England. For the most part these societies were conducted by teachers in the different schools with little attempt at central organization and no aim beyond the immediate relief of acute distress.

The Provision of Meals Act, passed in 1906, gave the local educational authorities permission to install school restaurants as part of the regular school equipment. This resulted in the rapid development of a system similar to the French cantines, which by March, 1909, has extended to over one hundred towns and cities.

Wide Extent.

From these early beginnings in Germany, France and England and with the various objects of charitable relief, promoting hygiene, and encouraging school attendance, the work of school feeding has spread until now, grown beyond a local issue, it has received national recognition and been made the subject of national legislation in France, Bavaria, Denmark, Switzerland, Holland, and Great Britain. It is national in scope with support by the municipalities in Germany, Italy, Sweden, Norway, Austria, and Belgium. It has been started in Spain, Russia, and the United States.

Prominence of Movement.

The movement for school feeding is by no means an obscure one, and during the past two decades has been the subject of serious and extensive investigation in most of the countries mentioned. In England, the Provision of Meals Act came as the crystallization of public opinion that had been shaping for forty years and had been tremendously stimulated for four years by the activities of four Parliamentary Commissions appointed to investigate the physical condition of the people. The Royal Commission on Physical Training in 1903 declared that malnutrition and not lack of gymnastics was responsible for the low physical standard obtaining throughout the nation, and suggested school meals as a necessary accompaniment to any possible scheme of physical training in the schools. The Committee on Physical Deterioration in 1904 corroborated the findings and suggestions of the earlier commission. During the next two years two national bodies, the Interdepartmental Committee on Medical Inspection and the Feeding of Children Attending the Public Elementary Schools, and the Select Committee on the Provision of Meals Bill, made specific inquiries into the subject of school feeding. In reports as ponder-

ous as their names, these two committees declared that voluntary effort could not meet the need, and that this might only be done by the school authorities. In London alone, by March, 1910, no fewer than 55,552 children were eating daily at the 842 meal centres.

In Germany the problem has been given wide publicity ever since 1890, when a national congress of vacation colonists was held and it was agreed that if the children were to receive permanent benefit from their country outings, they must be assured good food all the year round. In 1897 the Social Democrats introduced a bill in the Reichstag providing for school feeding in cities, but this was defeated on the grounds that such a measure would increase the migration of people to the large cities. However, since England has passed her act, the subject has been exhaustively studied in Germany and there is now serious and widespread agitation for compulsory national legislation.

Beginnings in America.

The movement for school feeding is very young in America, if we except purely charitable work like that of the Children's Aid Society, which in 1855 began to furnish free lunches to the children of the industrial schools of New York City.

Almost from the beginning of his superintendency of the New York schools, Dr. William H. Maxwell has urged the installation of lunches in the elementary schools where all who wish might buy at cost a warm nourishing meal at noon. In 1908 permission was given to a committee of social workers, physicians and teachers to try the experiment of serving three cent lunches in two of the New York schools. After two full years of trial, it was found that the meals might be made self-supporting to the extent of having food and service covered by the three cents, and the board of education agreed to allow similar luncheons to be established in any other of the city schools. At present the committee is serving luncheons in seven schools.

The Starr Centre Association started penny lunches in two Philadelphia schools over fifteen years ago; a work that has continued and grown with the co-operation of other societies until at present there are nine schools with some form of school lunch, attended on the average by 40 per cent of the school enrolment.

After two years of agitation and investigation, the Board of Education in Chicago, in the fall of 1910, appropriated twelve hundred dollars for the experiment of installing lunches in six city schools. The experiment was a success and the work has continued.

In twenty-seven other cities in ten different states women's clubs, teachers and medical inspectors have organized to introduce lunches in the elementary schools and in about thirty other places they are under consideration. This work is not limited to the large cities nor to any section of the country. It is found in cities as diverse in size and locality as New York and Eau Claire, Wisconsin; Boston and Memphis; Chicago and Houston. A beginning of lunches in the rural schools is reported from Minnesota, but no statistics on this are at hand. The national character of the interest roused in the problem is indicated by the fact that the United States Bureau of Education published a bulletin in 1909 on "The Daily Meals of School Children," and that Commissioner Claxton has under way an investigation of the cost, administration and efficiency of the service where it has been developed.

Such in brief is the general history of the School Feeding Movement. Begun over a century ago, it has in the last twenty years attained such momentum that it is now in the forefront of social and educational activity in Europe and is attracting increasing attention in our own cities.

Investigation of Underfeeding among American School Children.

In this country, as elsewhere, there have been two main channels of interest leading to the introduction of the lunches. On the one hand, workers seeking to extend the influence of the schools have seen in the noon hour an unrivalled opportunity for reaching the whole child at the most vivid point in his consciousness: the food interest. On the other hand are persons with sympathies, poignantly awakened by accounts of children forced to attend school with bodies and brain weak and without energy from malnutrition and underfeeding, who see in school meals a partial remedy for this unquestioned evil. Because the latter interest is the most widespread and most debated, it seems well to marshall the results of the more notable investigations in this subject, with no further comment than to disclaim any attempt at conclusive statistical deductions other than the most general estimate of the extent of the condition.

The Number of Underfed Children.

General public interest in school feeding began with the publication in 1904 of Robert Hunter's book, "Poverty". In trying to give some estimate of the amount of suffering that must exist as a result of poverty Hunter made the statement that there must be "very likely sixty or seventy thousand children in New

York City alone who often arrive at school hungry and unfitted to do well the work assigned to them."[1] This statement has received more publicity than any other one sentence in the whole book, and it was all too often translated by the newspapers into "70,000 starving children in New York City come breakfastless to school." As a result many so called investigations were made and most conflicting reports published which alternately refuted, corroborated and outdid Hunter's original statement.

Shortly after the publication of this book, John Spargo undertook to find out by personal investigation the real facts about underfed children in New York City.[2] He first confined his attention to the subject of the usual breakfasts eaten by school children. He was able with the cordial co-operation of principals and teachers to gather fairly reliable information in regard to the breakfasts of 12,800 children, in sixteen different schools.

The method used was as follows. Each child was questioned privately by the class teacher, as to what he had for breakfast that day. If he reported no breakfast, the fact was noted, and also if he reported an inadequate breakfast. For this investigation, an inadequate breakfast was defined as one not containing any of the following articles: milk, eggs, meat, fish, cereal, butter, jam or fruit; it further meant one consisting of coffee or tea, either alone, or with bread or cake or crackers. Each teacher reported to the principal the number of children with no breakfast, and those with inadequate breakfasts, omitting so far as possible children of fairly good circumstances whose lack of breakfast was accidental or unusual.

The inquiry revealed the following facts: of 12,800 children, 987 or nearly 8 per cent had no breakfast; 1963 others, or over 15 per cent had inadequate breakfasts. This made a total of 23 per cent of all the children in those schools who were badly fed, so far as this might be indicated by breakfast alone.

Mr. Spargo then tried to find out what sort of lunches the children had. He was assured by teachers and principals and by his own observation that many children did not go home at noon, but remained playing about the school yard, with no lunch at all. No exact figures were gathered on this point. From questioning by the teachers, it was found that anywhere from 10 to 20 per cent of the children were given pennies to buy their own lunches. He watched what they bought and reports this special illustration as a fair example of their choice in winter. Fourteen children, eight

[1] Hunter, Robert. Poverty. The Macmillan Company, p. 216.
[2] Spargo, John. The Bitter Cry of the Children. New York, The Macmillan Company, 1906, pp. 61-124.

boys and six girls, in one delicatessen store, bought, seven of them pickles and bread, four of them pickles alone, two of them bologna and rye bread, and one pickled fish and bread. On a summer day he saw a group of nineteen buy, six of them pickles, two of them pickles and bread, six ice cream, two bananas, and three candy. Mr. Spargo found that another way the lunch pennies go is in gambling, especially among boys.

This investigation was followed by many others, both in New York and in other cities, which may be grouped in two classes; the first being confined, as was Mr. Spargo's, to a study of the kind of breakfasts and lunches eaten by the children, and the second a survey of the children's nutrition, made by physicians.

The following is an account of various other inquiries into the subject of the breakfast of school children:

In 1906 Dr. Lechstecker, acting for the New York State Board of Charities, examined 10,707 children in the twelve industrial schools of the Children's Aid Society. He found that of these, 439 had had no breakfast on the day of inquiry and 998 others had had breakfasts of coffee alone or with bread. These children, who formed 13 per cent of all examined, showed marked anemia. Dr. Lechstecker declared that he found that only 18 per cent of all children had started the day with what he considered suitable and adequate meals.

In a similar examination made in 1905 in Chicago of 5150 children in five schools, 1586 or 31 per cent reported an entirely inadequate breakfast or none at all. In Buffalo, of 7500 children in eight schools, 5105 reported a breakfast of tea or coffee and bread. The principals in these schools asserted that there were 1150 or 15 per cent of all examined who were obviously handicapped by poor nutrition. In Philadelphia 4589 children were examined and 189 reported no breakfast, and 2564 tea or coffee and bread, making a total of 59 per cent coming to school inadequately fed.[3]

Beginning with the year 1906, medical inspectors in New York public elementary schools, have recorded cases of malnutrition. During these five years from 1906-1910 inclusive, in a total number of 860,728 examinations the average percentage of cases found was five. This means that in the proportion of one in twenty cases examined, the condition of malnutrition was so marked that it was entered on the official records as one of the physical defects of the child.[4]

[3] The Hunger Problem in the Public Schools—What the canvass of six big cities reveals—Special correspondence in the Philadelphia *North American*, May 31, 1905.
[4] Reports of the New York Superintendent of Schools, years 1906 through 1910.

In 1907 the New York Committee on the Physical Welfare of School Children found on examination of 1400 typical New York school children that 145 or 10 per cent showed marked symptoms of malnutrition, and visits to the homes showed that the daily food of many others was unsatisfactory. A few months after the first examination 990 of these children were re-examined more carefully and of these 128 or 13 per cent were declared to be suffering from malnutrition.[5]

In 1909 Dr. E. Mather Sill, at his clinic on the lower east side of the city, made a very careful medical examination of 1000 children whose ages ranged from six years to twelve years and found 400 children who were badly undernourished.[6]

Finally, in the early part of 1910, the School Lunch Committee made a special examination of 2150 children in the lower grades of two New York schools, and found 283 of these or 13 per cent were marked cases of malnutrition. These children weighed on the average nine pounds less than the normal for their ages.

In Chicago in 1908, of 10,090 children in twelve schools, 825 children were found by medical inspectors to be suffering seriously from malnutrition, due to deficient food. In addition, 353 others were found who were undernourished, but for whose conditions other causes than inadequate food might be responsible. This means that a total of 1178 or 12 per cent of those examined were badly nourished.

One striking fact shown by the Chicago investigation was that the number of acutely undernourished children decreased in the higher grades. An analysis of the distribution of the 1178 children in the different grades follows:[7]

Grade	Underfed Number	Per Cent
Kindergarten	70	15.5
First grade	502	14
Second "	235	11
Third "	195	10
Fourth "	91	9
Fifth and above	85	6
Total	1178	12

[5] The Physical Welfare of School Children, Quarterly publication of American Statistical Association. Boston, 1907.

[6] Sill, E. Mather, M.D. A Study of Malnutrition in the School Child. *Journal of the American Medical Association*, Vol. LII, No. 25, p. 1981.

[7] Reports on Underfed Children. Reprinted from Minutes of the Board of Education of the City of Chicago, October 21, 1908.

In Philadelphia, in 1909-10, a special investigation of 500 children in one school in a poor district, including a medical examination and a visit to the home of each child, revealed serious underfeeding in 119 cases, forming 24 per cent of the whole.

In Boston, the routine medical inspection of all children in 1909 revealed between 5000 and 6000 cases of underfeeding and anemia, among a total of 80,000 children.

In St. Paul, in 1910, Dr. Meyerding, head of the Medical Inspection, made a special examination of 3200 children in schools frankly chosen from the poorer district. He found that 644 or 20 per cent of the whole showed marked underfeeding.

In Rochester, in 1910, Dr. Franklin Bock examined 15,157 children. Of these he designated 752 or 5 per cent as showing evident lack of nutrition, and 1285 as anemic.

As a general conclusion from these investigations it seems fair to place the probable number of seriously underfed school children in New York and other American cities where official inquiries have placed it in European cities,—at 10 per cent of the school population. This number doubtless includes many who might be able to pay for an adequate lunch at noon, if the opportunity were provided.

Poverty, Ignorance and Malnutrition.

No one doubts that there is a close relationship between poverty and underfeeding—the terms are practically synonymous. Many persons, however, insist that the immediate cause of most of the underfeeding among the school children in American cities is not poverty but ignorance—that if the majority of incomes, slender as these are, were expended wisely, the children might be properly fed.

Light on the general problem of the relation of income to nutrition was thrown by Dr. Chapin's study of the Standard of Living among Workingmen's Families in New York City.[8] His investigation involved keeping a detailed account during one week of the actual expenditures for and consumption of food in one hundred typical families of a dozen nationalities. So far as possible "normal" families consisting of a father, mother and three children were chosen. The material gathered in this investigation was submitted to dietetic experts, who estimated the actual food value consumed each day per family, and by each member of the family. These results were compared with the American standard ration of persons of different ages as computed by Atwater. In

[8] Chapin, Robert Cort. The Standard of Living among Workingmen's Families in New York City. New York, 1907. Pp. 123-161.

this computation the unit taken is the daily food need of the father of the family, a man at moderately active muscular work. The needs of the women and children are then calculated in progressive fractions of this unit, varying from three-tenths for the child under two to eight- and nine-tenths for the women and adolescents in the family.[9]

When the expenditure for food was compared with the actual amount of food purchased, it was discovered that in general the families that spent on food less than 22 cents per man per day, were underfed, that is they were unable to buy enough to support life on a plane of physical efficiency.

The yearly expenditure for food in each of the 391 families was then determined, and it was found that applying the minimum standard of 22 cents per man per day, the families might be grouped as follows, according to the income and the percentage of necessary underfeeding, as estimated by the amount spent on food:

Annual Income	Total No. of Families	Underfed Families Number	Underfed Families Per Cent
$400- 599	25	19	76
600- 799	151	48	32
800- 899	73	16	22
900-1099	94	8	9
1100 and over	48	0	0
Totals	391	91	23.2

The figures in this table indicate that with less than $600 a year to spend, an adequate food supply is not provided in three families out of four. On incomes from $600 to $800, one family in three is underfed, while less than one-tenth of the families having $900 to $1000 to spend fall short of the minimum allowance for food. The income of $1100 for a family of five is apparently a safeguard against underfeeding.

Incomes of Families of Underfed School Children

The study made by Dr. Chapin was not directly concerned with the problem of underfed school children. So far as specific investigations have been made of the family incomes of underfed school children Chapin's findings have been corroborated. The most careful study of the kind yet made was that conducted by the New York School Lunch Committee in 1909. This study covered 262 cases of undernourished children. Records were made of all

[9] United States Department S. Agricultural Farmers' Bulletin, No. 142, p. 33.

the details in their home life which might bear on their condition. Some of the results were as follows:

Of the families of 106 children, it was found that in 69 per cent of the cases the yearly income fell below $825. The families were grouped according to incomes as follows:

Annual Income	Number	Per Cent
$825 and over	33	31
500-800	38	36
400-500	11	10
Less than $400	24	23
Totals	106	100

Home Feeding.

A study of the food given to these 262 undernourished children at home showed that 93 per cent had tea or coffee every day and of these nearly 40 per cent had it twice a day.

Given a breakfast of tea or coffee and bread, a great many of these children had to wait till night time for a real meal. In nearly 10 per cent of the cases the mother worked away from home all day and could not prepare any lunch at noon. In 23 per cent there was no prepared lunch at home and the children had to get it for themselves. In a still larger number of cases forming 38 per cent of the whole there was no available lunch at home of any kind and if the children did not have pennies they had nothing at noon. This makes a total of 68 per cent for whom there was no regular provision for a noonday meal at home. From accounts given by the mothers, the evening meal was not of such character as to make up for the other poor and irregular meals. Detailed accounts of the actual food eaten at home by 141 children showed that 77 per cent were receiving too little food of any kind, leaving suitability out of the question.

Housing.

But poverty may affect nutrition in other ways besides mechanically limiting the food supply. Poverty means narrow living quarters and even a limit to the supply of air. This was well illustrated during the same investigation, when details were gathered of the housing of 217 families with undernourished children.

The following table shows the number of persons to a room:

	No.	Per Cent
1 person or less per room.....	17	8
1 - 1.5 person " "	47	22
1.5 - 2 persons " "	63	28
2 - 2.5 " " "	39	18
2.5 - 3 " " "	38	18
Over 3 " " "	13	6
Total	217	100

In 42 per cent of the families there were more than two persons to every room in the house. This means that the sleeping rooms were even more crowded because the kitchen is included in the number of rooms. In seventeen families there was a room for each member of the family. The number of rooms taken by itself is only a rough indication of the actual condition of crowding and bad air, because of the fact that many rooms are windowless. Further, in the old style "railroad" flat, which still outnumbers any other type in New York, the "rooms" are simply vaguely defined sections in a long corridor.

Similar investigations into the social and economic factors making for underfeeding in New York and other cities have given results like those just outlined. Among the conditions making for underfeeding in school children, especially in large cities, are overcrowding, irregular and bad food habits and actual lack of enough to eat. These are not the only ones, but they are the important ones, and in a majority of cases are directly traceable to poverty.

SELECT BIBLIOGRAPHY.

ATWOOD, W. O., Ph.D. (Special Agent in Charge of Nutrition Investigations, Office of Experiment Station, U. S. Bureau of Agriculture):—Principles of Nutrition and Nutritive Value of Food. Farmers' Bulletin No. 142 (corrected to April 5, 1906). Washington, Government Printing Offices.

(Popular introduction to the study of food values, standards used being based on observation of what people do eat, not on experimental work.)

BRADFORD EDUCATION COMMITTEE:—Report for 1909. Education Office, Manor Row, Bradford, Eng.

(Statistics of school feeding in Bradford, 1908-9. Descriptive account of plant.)

Also

Recipes, compiled by Marian E. Cuff (Superintendent of Domestic Subjects) and used in the preparation of the Seventeen Dinners served in the School Dining Rooms. Published at Education Offices, Manor Row, Bradford, Eng., February, 1908.

BRYANT, LOUISE STEVENS:—School Feeding in Europe. *Journal of Home Economics*. April, 1910, pp. 149-159.

(A summary of the present condition of school feeding in France, England, Germany, Italy and other European countries, with description of typical organizations.)

BRYANT, LOUISE STEVENS:—The Feeding of School Children. *The Dietetic and Hygiene Gazette*, September, 1910, Vol. XXVI, No. 9, pp. 527-536.

BRYANT, LOUISE STEVENS:—Some Recent Experimental Work in Children's Food Needs. *The Dietetic and Hygiene Gazette*, June, 1911.

(An account of work on children's diet analogous to Crittenden's work on diet of adults. Comparative study of requirements of fifteen standard authorities on children's diet. Four tables.)

BONNELL, HENRY H.:—First Annual Report of the School Lunch Committee of the Home and School League. Philadelphia, December, 1911, 19 pp.

(Account of Lunches in Philadelphia Schools. Particular reference to experimental work and study of home conditions.)

BOUGHTON, ALICE C.:—Penny Luncheons. THE PSYCHOLOGICAL CLINIC, Vol. III, No. 8, January 15, 1910.

School Luncheons, *Journal of Home Economics*, Vol. III, No. 1, February, 1911.

(Plan of lunches under auspices of Home and School League in Philadelphia.)

BURNHAM, WM. H. FORD:—Cyclopedia of Education, New York: The Macmillan Co., 1911. Vol. II. pp. 627-630, Food and Feeding.

(Section on Nutrition, School lunches in America and England. Bibliography. Feeding. Careful argument for school feeding as part of school life and equipment.)

CORNELL, WALTER S., M.D.:—Health and Medical Inspection of School Children. Philadelphia: F. S. Davis Company, 1912. School feeding, pp. 100-114. Chapter on Nutrition, pp. 479-498.

CROWLEY, RALPH E.:—(Medical Dept. of Board of Education, Great Britain.)

1. The Hygiene of School Life. London. Methuen & Co., 36 Essex St. W. C. 1910.

(General treatment of nutrition of child, p. 12 ff. Chapter on the Provision of School Meals. This chapter represents the author's conclusions in regard to the subject, reached after several years of practical experience in organizing meals in Bradford.)

2. Report by the Medical Superintendent (in conjunction with Superintendent of Domestic Subjects, Marian E. Cuff) on a Course of Meals given to Necessitous Children from April to July, 1907. Pub. by City of Bradford Education Committee, Bradford, Eng., and September, 1907. (Out of print.)

(This is an account of an experiment to determine the effect of food alone on the health and growth of school children. It is notable in being the first experiment where proper precautions were taken to isolate the factor of food, and to have control records kept. The original report is out of print, but a summary of its conclusions and the chart in the original are given in *Progress*, April, 1908. See also in this Bibliography articles by L. S. Bryant.)

CHAPIN, ROBERT COIT:—The Standard of Living among Workingmen's Families in New York City. Pub. by the Russell Sage Foundation. New York: Charities Publication Committee, 1909.

(The factor of food is treated prominently. Estimates are given of the percentage of "underfed families" in New York City, grouped according to income. Underfeeding exists in 76 per cent of the cases where the family income lies between $400 and $600, and is found to lessen as the incomes rise, until only 9 per cent of the families receiving $900—$1000 a year are underfed, and disappears with the income of $1100 and over.)

FREERE, MARGARET (Member of of the Education Committee, London County Council):—Children's Care Committees. London: P. S. King & Son, Great Smith Street, Westminster, 1909, 86 pp., 1s. net.

(Unofficial handbook for members of "care committee having charge of social and charitable work in schools." Ch. II on "How to Feed Necessitous School Children." Appendix giving typical menus.)

GORST, SIR JOHN ELDON:—The Children of the Nation: How their Health and Vigour should be promoted by the State. London: Methuen & Co., 1907, 207 pp.

GASTPAR, DR. (of Stuttgart):—Die Beurteilung des Ernährungszustandes der Schulkinder. *Zeit. Schulges.*, XXI, Jahr., 1908, pp. 689-702.

(The correlation of thirteen diseases found in 8000 school children with their nutritional condition. Four times as many cases of disease are found among the badly nourished as among the well nourished. Six tables. Practical method of classifying nutrition. A remarkable, and highly significant piece of work, and the first of its kind.)

GREAT BRITAIN, Parliamentary Reports. (These all to be obtained from Wyman & Sons, Fetter Lane, E. C., or Eyre and Spottiswoode, East Harding Street, Fleet Street, E. C.)

(Reports of work of the Official Commission leading to the passage of the "Provision of Meals Act," and dealing with its subsequent carrying out.)

1903 (Cd. 1507):—Report of the Royal Commission of Physical Training (Scotland).

1904 (Cd. 2175):—Report of the Inter-Departmental Committee on Physical Deterioration.

1906 (288):—Special Report and Report from the Select Committee on the Education (Provision of Meals) Bill, 1906; and the Education (Provision of Meals) (Scotland) Bill, 1906; together with the Proceedings of the Committee, Minutes of Evidence, and Appendix.

(Methods and administration in England, particularly in voluntary systems of feeding, reported on by 28 witnesses, all with practical experience. Valuable and suggestive for practical workers.)

1907 (Cd. 3637), Mackenzie, W. Leslie, M.D.:—Report on a collection of statistics as to the Physical Condition of Children attending the Public Schools of the School Board for Glasgow.

(Most extensive investigation of the kind ever made, including 72,800 cases. The heights and weights of the children classified according to housing and nutrition.)

1910 (Cd. 5131):—Report of the Working of the Education (Provision of Meals) Act, 1906, up to the 31st of March, 1909.

(Includes a classified report of information received from over one hundred towns having adopted the act. Administrative, financial and educational issues.)

HUNT, CAROLINE L.:—The Daily Meals of School Children. Washington, Government Printing Office, 1909.

(Main emphasis on food values and dietaries for children. Bibliography and index.)

HUTCHINSON, ROBERT:—Food and the Principles of Dietetics. London, Arnold, 1906.

(General textbook on nutrition. Not written especially for the trained reader. Considerable matter on children's diets.)

KAUP, DR. MED. I.:—Die Ernährungsverhältnisse der Volksschulkinder. (Vorbericht und Verhandlungen der 3. Konferenz der Zentralstelle für Volkswohlfahrt. 1909. Darmstadt.) Berlin: Carl Heymanns Verlag, 1909, 170 pp., 22 tables.

(This is an account of the most extensive investigation of school feeding that has ever been made in any country. It covers the reports of school feeding organization in all towns of 10,000 and over in the German Empire (these are analyzed and the results tabulated); an account of the daily food of about 500,000 school children; the report of a special examination of the nutritional conditions of 170,000 children. The causes and effects of malnutrition are discussed at length. Plans and outlines for future work; the correlated social reforms, etc., are given. Critical analysis of the food values in the meals of some 25 towns.)

KITTRIDGE, MABEL H.:—Experiments with School Lunches in New York City. *Journal of Home Economics*, April, 1910.

LANCET REPORTS:—The Free Feeding of School Children. A reprint of the reports by the Special Sanitary Commissioner of *The Lancet* on the action taken by the municipalities with regard to the provision of meals for the children attending the elementary schools of Paris, Brussels, Milan,

Vercelli, San Remo, Mentone, Nice, Cannes, Toulon, and Marseilles. Second edition, 1907. The Offices of the Lancet, 423, 424, Strand, London, W. C.

(Those interested in the important questions of the popular and political reactions to the introduction of meals into the schools will find these reports most valuable. The political and financial dangers and complications as well as their final solution are given in detail for each place.)

MAYER, M. J.—Vital Question of School Lunches, III, *Rev. of Rev.*, 43, 455-9, April, 1911. (See also Edit.) *Pa. Sch. Jour.*, December, 1911, —. 261.

Organisation des Cantines Scholaires à Paris. A report in manuscript manifold issued by Direction de l'Enseignement primaire, 3me Bureau. Prefecture du departement de la Seine.

(An account of the origin and history of the cantines in Paris from 1879 to 1903, with a detailed description of their conduct in the 18th district, regarded as the model in this respect.)

SIMON, HELENE:—Schule und Brot. 1908, Leipzig, Leopold Voss. 1st edition, 1907, 112 pp.

(General treatment of the whole problem from the social, economic and legal points of view. Propagandist rather than statistical. Historical and descriptive account of English, French and German systems to date.)

SIMON, HELENE:—Die Schulspeisung. 1909, Leipzig. (Oct.) Duncker und Humblot. 93 pp. Appendices.

(General treatment of whole subject, taking into account the latest German reports. (See Kaup.) Social, economic and legal aspects and implications. Other countries.)

SIMON, HELENE:—Schulspeisung. 1911. Enzyklop. Handbuch des Kinderschutzes usw. Englemann, Leipzig. II, pp. 206-213.

(Material of Die Schulspeisung, 1909, condensed for an encyclopedia and brought up to date with bibliography.)

TORREY, EMMELINE E.:—Penny Lunch Movement (Illustrated). *Good Housekeeping*, Vol. 52, pp. 242-4. February, 1911.

(Describes lunches in Boston Schools.)

ADMINISTRATION OF SCHOOL LUNCHEONS.

By Alice C. Boughton,

Philadelphia, Pa.

There are approximately 170,000 children in the primary schools of Philadelphia. Over one-third of this number come from homes below the poverty line; one-third more are just above it; the remaining one-third are comfortably situated.

The work in school feeding, which has been done here for the past few years under the Home and School League, has been largely among the first two groups of children—those near the poverty line. Despite this fact, the amount spent by each child in the schools where lunches are served, is $1 a year, and this is by no means all the money that the child has to spend. It is then a simple matter to calculate that the money spent by the children in the public schools of our city is about $170,000 a year. This is a very large sum of money and worthy of consideration on the part of the Board of Education, as to the possibility of making this expenditure a strong factor in the scheme of public education.

Penny Lunches. There are nine schools where penny lunches are served at the 10:30 recess. The luncheon consists of milk, one hot dish each day (the portion being one-sixth of a quart), crackers and fresh or cooked fruit. The kindergarten and first grade children do not have recess with the others, but they can buy a graham cracker and a cup of milk for a cent. This luncheon grew out of the demand of the children for something to eat at 10:30 and has been the means, in all the schools where it is served, of driving the push-cart man away from the door. It is very popular and is used by from 40 per cent to 75 per cent of the children in attendance at the school.

Three-cent Dinners. Three of these schools have, in addition to the penny lunch at 10:30, a dinner at noon. The dinner consists of a hot dish,—soup, stew or fish, or a meat substitute,—bread and fruit, or a cooky. The charge is three cents. There is only one hot dish for the day, but the children are told what they are going to have when they buy their tickets in the morning, and the few who do not like the dish for the day are easily satisfied by having in its place a large bowl of milk, or a cup of cocoa.

A SPECIAL CLASS PROLONGING THE JOYS OF BEAN SOUP FOR THE PICTURE.

Experiment with Five-Cent Dinners. The service so far considered is confined to primary schools. In two grammar schools with enrolments of 800 and 1600, an experiment is now being conducted to see whether or not the luncheon can be made entirely self-supporting if a charge of five cents is made for practically the same dinner as is served in the elementary school for three cents, the difference being that the older children receive a little larger quantity of the hot dish and a roll instead of the bread. The aim is to make a profit of a cent per meal over the cost of the food.

Penny Extras. In connection with both dinners, there is a table arranged like the penny luncheon counter where there are always milk, cocoa, crackers and fruit, and sometimes a simple dessert for one cent, so that the children who have brought their lunch from home may supplement it by getting something hot, or those children who do not have the necessary three or five cents may get a small amount of nutritious food for a penny at this time.

Number of Children served. In all the schools served there are about 6000 children who have the opportunity to buy the lunch or dinner and of that number fully 3000 patronize them daily. So far, the problem of providing food for the children too poor to buy the food has not been satisfactorily solved. Under the system of the Home and School League no child receives a luncheon who does not pay for it and there are some undernourished children in each school who have not even the necessary penny. To find a practical solution of this problem is one of the next steps to be taken.

Equipment and Plant. The equipment is very simple. The serving dishes,—cups, bowls, pitchers, and large trays,—are all of white enamel. White enamel ware is more expensive than agate but well worth the difference in cost. It not only adds greatly to the attractiveness of the food, but also has a positive educational value through training the children to appreciate and desire neatness and cleanliness about them. Another point not to be overlooked is the effect upon the worker. The glistening whiteness of the cups and bowls when kept in good condition well repays her for the labor involved in their thorough washing and daily sterilization. Needless to say the work of the superintendent is hereby lightened. The saleswomen are very human,—they respond to attractive surroundings immediately, and the standard of work in a light cheery kitchen is always higher than can be obtained in a dark, airless basement. The small trays for

the dinner are of black lacquer. The cooking utensils are agate or block tin and consist for the most part of one or more large sized double boilers and a sauce pan in which to cook fruit, in addition to the necessary measuring cups, spoons, etc. Dinner tables are covered with white oilcloth. Tables for cooking and serving purposes can sometimes be found at the schools, but in case they have to be provided they generally consist of adjustable tops and trestles of different heights, according to the size and age of the children. In a school ranging from the kindergarten through the grammar grades the tables are of different sizes and so are the benches which go with them. The four schools where the dinners are served and a couple of the schools having penny lunches alone, have tables and benches. The counter consists of a table top on trestles.

Accommodations. Because the school luncheon is not yet a recognized part of the school, and is not provided for in the architectural plans, accommodations are of necessity makeshifts, though not always unsatisfactory. In one school the cooking is done in the teachers' dressing roon and the serving in the fire tower; in another the cooking is done in the teachers' dressing room and the serving in the hall; in another the cooking is done in the teachers' dressing room, third floor front and the serving in an unused class room, second floor back. In yet another school the cooking and serving are both done in an unused second story class room, etc. In one school only is there anything resembling a kitchen. This room is in the basement and the luncheon is served in the play room across the hall. If this good kitchen and the sunny second story class room shown in the picture on page 49 were together, it would be the beginning of an admirable school luncheon plant, but so far accommodations have been remnants of space not needed for any other purpose.

Cost. Supervision, service and equipment are provided by the Committee on school lunches of the Home and School League. The Board of Education gives overhead charges, gas and water. The food must pay for itself.

Supervision. The luncheons are under the supervision of a graduate dietitian who buys the food materials, prepares dietaries, recipes and menus, visits the schools frequently, and acts as treasurer for the Committee.

Service. There is a woman in charge of the actual work at each school who prepares and serves the food and receives the money from the children. The money with an itemized weekly

account on a regular record card (p. 50), is turned in weekly to the superintendent. A monthly account of the receipts and expenditures for each school is kept by the superintendent. As a reward of merit, some of the older boys and girls are permitted to help in the serving, and for this their meal is given to them. At the penny lunch they help serve and at the dinner they keep the children in line and see that each one takes the necessary tray, napkin, and spoon and turns in his dinner ticket. They also see that no child leaves the lunch rooms without putting his soiled dishes and spoons in the pail of water, kept near the door. The dishes soak until the attendant is ready to wash and boil them.

Administration. In Philadelphia with its limited number of schools served, a very simple system of administration has worked well, but as the number increases it becomes more and more difficult to maintain in every school a high standard of serving and cooking. No one person can visit the schools as frequently as they should be visited to maintain such a standard.

Type of Saleswomen. The saleswomen for the most part are middle aged women who are glad to add to the family income by doing part time work and who would be unable to give a full day. They receive from $5 to $8 a week and are on duty from 8:30 a. m. until 1 to 4 p. m. according to the needs of the school. They are extremely interested in their work, are fond of the children and do all in their power to make the luncheons a success, but they should not be called upon to meet emergencies nor decide important questions as they must do if they cannot consult frequently with the superintendent. There are, of course, points in favor of this system. The saleswoman, doing the work in the school each day becomes part of the school and the children come to regard her in very much the same fashion as they regard their teachers and are guided by her judgment in the matter of food. This is particularly important in dealing with foreign children No matter how good the equipment or how careful the service, the luncheon will fall flat if the children do not have a friendly attitude toward it and this is especially true when an outside organization attempts to do any kind of work in the public schools. It does not have back of it the moral support of the Board of Public Education.

In Boston for the past fifteen years food has been very successfully distributed from the New England Kitchen to high schools, all over the city. Up to the present in the elementary schools where the movement has been an experiment rather than

EVEN THE LITTLEST CHILDREN CAN SIT DOWN ON THE FLOOR WITHOUT SPILLING A DROP FROM THEIR CUPS. THIS ROOM IS USED ONLY AT LUNCH AND THE FLOOR IS ALWAYS CLEAN.

RECORD KEPT DAILY BY SALESWOMAN AT SCHOOL, SHOWING MENUS, NUMBER OF LUNCHES SERVED, AND RECEIPTS. THE CARD SHOWN IS FOR A GRAMMAR SCHOOL, WITH NO KINDERGARTEN, AND THE DINNERS COST 5 CENTS.

Northwest School — SCHOOL LUNCHES. — *Saleswoman M. A. B.*

March, 1912

		Menu for Day	Kindergarten	Aids	Teachers (10c.)	1c. lunch	Dinners	Receipts
Mon.	25	*Penny lunch:*—Milk; cocoa; crackers; fruit..... *Dinner:*—Baked beans; roll.....	.....	2	1	644	50	9.04
Tues.	26	*Penny lunch:*—Milk; cocoa; crackers; fruit..... *Dinner:*—Vegetable soup; roll.....	.....	2	.....	493	34	6.63
Wed.	27	*Penny lunch:*—Milk; rice pudding, etc..... *Dinner:*—Creamed dried beef on toast; roll.....	.....	2	1	535	29	6.90
Thurs.	28	*Penny lunch:*—Milk; cocoa, etc..... *Dinner:*—Corn chowder; roll.....	.....	2	.....	578	41	7.83
Fri.	29	*Penny lunch:*—Milk; cocoa; baked apples, etc.... *Dinner:*—Creamed salmon; roll.....	.....	2	.....	559	37	7.44
		Totals.....	.....	10	2	2809	191	37.84

an accepted institution, little along the line of centralization has been done. In Europe where elementary school feeding is now accepted and where the boards of education have taken over the work, the luncheon is very generally forwarded to the school from a center. It would seem as if this were the logical line along which to develop. By having a center a standard of cooking and serving can be maintained, for the amount of work done would warrant putting in charge of each center a graduate of domestic science who would control the local situation, supervise the preparation of the food in her center and the serving of the food in her schools. The food cost would be considerably lessened by buying in large quantities and delivering to one place instead of ten or more. Whether the increased service cost would be balanced by the lessened food cost cannot be known until this scheme has been tried.

In Philadelphia the city is divided by the Board of Education into ten districts with a District Superintendent in charge of each. The number of children attending the schools in these districts varies from 14,000 to 20,000. The school districts correspond fairly well with the national localities so that one district includes most of the Italian children, another the bulk of the Jewish children and so on. By having an Italian Center or a Russian Jewish Center, special attention might be given to race tastes and race prejudices, at the same time that the effort is being made to teach the children to use and like the distinctively American foodstuffs and cooking.

Each day the movement for school feeding is increasing in power and every superintendent of school luncheons is receiving frequent inquiries from all parts of the country.—inquiries not as to the history or present status of school feeding, but a definite request for detailed information which will throw light on the practical side of the work. It is becoming increasingly difficult to answer these questions because, while considerable work is being done, up to the present there has been no correlation of experiments in different cities, and the only means that new cities have to get this information is by the long and tedious method of writing to every city doing the work and asking for a detailed plan. This is an unnecessarily wearisome method of procedure and it is time to have the heterogeneous mass of material on this subject collected and edited so that the different cities need not repeat each other's experiments nor duplicate each other's mistakes.

THE TRAINING OF THE SCHOOL DIETITIAN.

By Mary Schwartz Rose, Ph.D.,

Department of Nutrition, Teachers' College, Columbia University, N. Y.

Only a few years ago the term dietitian suggested a person who prepared special dishes for the sick in a hospital kitchen, or a managing housekeeper in some type of institution, who often held her position with no professional equipment except practical experience in her own home. With the rapid development of education in the household arts in schools and colleges, accompanying a period of great activity in the biological and social sciences, there has come to be at least partial recognition of the fact that providing food for human beings is a science as well as an art, and that the welfare of individuals or groups is, to a high degree, dependent upon the conditions under which they eat their food. If a school child has no regular meals, but boils coffee and takes it with bread whenever he happens to feel like it, it is no longer considered a mysterious dispensation of Providence that he turns out a dull pupil or a bad citizen. The small army of little folks who start to school every day without breakfast, are generally feeble and inattentive. Foreign children whose parents are ignorant of American food materials and how to use them, and who are in consequence fed corn and peas and beans cold from the can, have been discovered. Investigations into such conditions have not only raised the cry, "Bread with Education," but have shown that undernutrition is due quite as much to ignorance as to poverty, and have helped to amend the slogan to "Bread as a Means of Education." All this agitation has created a demand for trained women who know the full meaning of *Bread* and who are able to develop the educational features of school feeding, inculcating not only a respect for food as the builder and maintainer of the body, but also an appreciation of the beauty of neatness and order in eating, and a sense of the social value of partaking of food in company with others.

Lunch-rooms are being established in elementary and high schools. To carry on the work thus begun, suitable persons should be placed in charge of the rapidly increasing number of college dormitories, so that throughout the whole period of growth, some

twenty-five years, students may have suitable food to keep them strong and well, and be led to form eating habits which will help to conserve their energies in later life and promote their social welfare. This again means a demand for trained women, with a large capacity for responsibility and the altruistic spirit of the true educator. The dietitian has a business which demands social aptitude, good judgment, initiative, executive ability, a liberal education supplemented by technical training in the household sciences and their application to the institution, and sound business sense. Such training implies maturity and practical experience as qualifications for success.

Miss Alice Boughton, of the Home and School League of Philadelphia, estimates that the school children of that city spend annually not less than $170,000 for food away from home. The establishment of penny lunches and three-cent mid-day dinners in a very few schools, has already brought $5000 of that sum under the control of wise administration, so that some children are getting a true nutritive and educational return on their investment. The location of the lunch-room or dining-room, the character and cost of the equipment, the choice of food and control of service, must be within the dietitian's jurisdiction if she is to do her best work. Planning menus is futile, if it be impossible to get foods properly cooked and attractively and promptly served, or if one have no authority in case of the inevitable emergencies in purchase, preparation or serving of food; the careful calculation of fuel values is of no avail if the cook feels at liberty to water the soup because the dietitian has no direct authority over her.

The time required for technical training depends very much upon previous education and experience. With a college education including physics, biology, physiology, general and organic chemistry, psychology and economics, one or two years will serve to equip a woman for this kind of work, depending on her practical experience in household matters and the thoroughness of her preparation. Instruction in institutional management is still in its infancy, and provision of adequate practical training in this subject for the student is difficult. It is obvious that a course for any dietitian must include very thorough training in the nature of food materials, *i.e.* their source, manufacture and chemical composition; the nature of cooking processes and their effects on food materials; the technique of cookery, including special applications to institutional problems. The difference of proportions

in large and small quantity cookery, the necessity for serving a meal to several hundred with lightning-like rapidity, or the keeping of food hot for several hours at each meal are all factors which make institutional cookery a branch by itself, and cause lunch-room cookery to differ from other kinds of institutional cookery.

The choice of food requires definite knowledge of the quantitative and qualitative requirements for food in the group to be fed, and this implies acquaintance with the laws of biology, and of the chemical processes of digestion and metabolism, in addition to the chemistry of food. It is necessary to study the food requirement in each stage of development—infancy, childhood, adult life, and old age—and under various conditions of activity, health, season and climate, with a clear realization that every individual is to some extent a new problem, for whom the general principles of nutrition must be applied in a particular way, especially on the qualitative side. On the quantitative side nutrition is fast becoming an exact science, and a working knowledge of the energy values of many kinds of food will enable the trained dietitian to select a wholesome diet adequate in fuel (the first requirement) without illegitimate cost; and a watchfulness over the tastes and individual needs of her group will enable her to secure one which is also well-balanced.

This problem of the menu is much complicated by problems of service; it is harder to present attractive variety in the diet if the price be low, because many minor variations, which are possible in the home where service it not so closely reckoned, are impossible for a large number on account of the labor involved. It seems a small task to roll bananas in chopped nuts for a salad for a family of two, but the labor is almost prohibitive for a group of two hundred. Hence the study of food requirements from the scientific standpoint must be supplemented by special attention to institutional dietaries and instruction in the general principles of institutional management.

One of the most difficult things for the dietitian to learn is how to buy in the market. Courses in marketing are given, but markets fluctuate with season and locality, so that practical experience with rigorous scrutiny of the results, is necessary to success. In connection with this the student may learn how to keep her accounts in a business-like way and to use them as a criterion of success. She is responsible for the sanitary condition of the food she supplies, and training in bacteriology is the only effective

means of making her understand what sanitation really means. She must appreciate the dangers of dirty milk, uninspected cold storage plants, badly kept refrigerators, and unsterilized dishes passing among children to spread communicable diseases, especially of the skin. Besides sanitary cleanliness, it is desirable also to maintain an esthetic cleanliness for the sake of its psychological value.

There are many indications that the school dietitian is destined to become an important factor in education in boarding institutions and in the public schools of our large cities. Evidence is accumulating as to the beneficial effects of her work and she should be encouraged to acquire the best possible scientific training, with the prospect of recognition as one of the important agents in the betterment of the race, on a par with those who teach in more conventional ways. Teaching a little Irishman to like macaroni or a little Russian to like hominy, may be as great an educational triumph as inculcating the laws of Latin prosody, and is a more potent factor in strengthening in the children that spirit of toleration which will make them all American citizens.

EFFECTS OF COFFEE-DRINKING UPON CHILDREN.

By Charles Keen Taylor, M.A.,

Philadelphia, Pa.

First of all, what is the composition of coffee? "Coffee," says my materia medica, "contains caffeine and caffeo-tannic acid. During roasting a volatile oil is developed and several substances formed, which give to coffee its aroma and flavor, these empyreumatic substances being known collectively as caffeone." It goes on to say that "it produces a general feeling of warmth and well-being, dilates the superficial blood-vessels, and lowers arterial pressure. It also stimulates the nervous system, in some persons causing exhilarating effects upon the cerebrum and increasing capacity for intellectual labor, and frequently is the cause of headache in persons who take it habitually or in excess." Note these three words, "frequently," "habitually," and "excess". One point more from the materia medica, "Coffee differs from caffeine in being more stimulating to the intestinal tract, especially increasing the peristaltic movements, which are not affected by caffeine."[1]

The last statement we will consider first, briefly, coffee does not act just as does pure caffeine. It is rather common in these days to read articles concerning tests made in the endeavor to find the effects of habitually taking caffeine. It is said, generally, that caffeine increases physical and mental capacity, and leaves no bad after effects. This seems to be the consensus of opinion upon the habitual use of caffeine. The fact is that these results too often are taken to mean that regular coffee-drinking has no bad after-effects, under the impression that caffeine is the only active principle in coffee.

We have already read, however, upon good authority, that coffee does not act just as does caffeine. If coffee influences so important a thing as the peristaltic movements of the intestinal tract, it might well have other physical effects, some possibly not so blameless.

The writer who has made a special study of the physical and mental development of children, has felt for some time that coffee-drinking children were less "fit" physically and mentally than those who did not use coffee. Statistics on such matters are difficult to obtain, so that when an opportunity came several months

[1] Shoemaker's Materia Medica, Pharmacology and Therapeutics.

ago to study some hundreds of school-children physically, and to some extent mentally, considerable effort was made to obtain figures bearing on this question.

Statistics were obtained from 464 children. It was found that about 29 per cent of these children drank no coffee at all, 46 per cent drank a cup a day, 12 per cent drank two cups, 8 per cent three cups, and the remainder four or more cups of coffee each day. Certain measurements were taken of these children, that is —their height, weight, and strength of hands. From their school reports their lesson and conduct "averages" were taken. With these on hand we had something to work upon.

First the lesson values and conduct marks of those drinking coffee and those not drinking it were compared. These children, it may be said, were divided between two schools, one of a poorer neighborhood than the other. The difference in circumstances, seemed to show a little effect in the final results. The general average for conduct of all those not drinking coffee was 75.6, while that for all those drinking coffee was 73.1. This average began at 73.3 for those drinking one cup per day, and ran down to 67.8 for those drinking four or more cups. In the marks for lessons we find similar results. Those drinking no coffee averaged 73.4 for lessons in the month in which the test was made, while those drinking coffee averaged 70.8 in the same month. In all, it might be said that there were lower and lower grades for lessons as the amount of coffee taken each day increased. For instance, those drinking four or more cups per day averaged 63.8 for their lessons, a very great difference from the 73.4 of those drinking no coffee! In the school containing the poorer children, those tested numbering 134, it was found that the coffee drinkers averaged 4.4 per cent lower in conduct and 7.5 per cent lower in lessons than those drinking no coffee.

These statistics are hardly sensational, but it seems to the writer that if such differences exist between the mental ability, as shown by lesson-work, and behavior, as shown by conduct-marks, of those drinking and those not drinking coffee, that this beverage must have some unwholesome effect upon children that it does not have upon adults.

The physical measurements taken of the children studied in this test were made for quite another purpose than that for which they are used here. Thinking it might be interesting, the writer compared the weight, height, and strength of those drinking and those not drinking coffee. In the following results the records of

151 children were used. These children were studied in groups according to age. It is an easy matter to arrange the results in the form of a table, as follows:

TABLE SHOWING DIFFERENCES BETWEEN CHILDREN USING COFFEE AND CHILDREN NOT USING COFFEE DAILY.

Age	Children	No. Exam.	Weight (lbs.)	Height (ins.)	Grip (lbs.)
8	Without Coffee.....	8	54.3	48.2	27.9
8	With Coffee.....	16	52.6	47.9	26.0
9	Without Coffee.....	11	66.0	50.7	33.0
9	With Coffee.....	36	58.6	49.1	32.3
11	Without Coffee.....	17	72.9	54.8	38.7
11	With Coffee.....	29	69.5	53.6	38.7
12	Without Coffee.....	17	78.7	55.8	45.3
12	With Coffee.....	17	74.0	55.4	42.0

In other words, the children concerned in this test who drank coffee regularly, averaged from one and a half to more than four pounds less in weight, from a half-inch to more than an inch less in height, and all the way to three pounds less in hand-strength than those who never drank coffee. These differences may not be startling, but it is evident that there are differences.

As a conclusion, then, to this very brief paper, the writer would say that it seems likely that the regular drinking of coffee by children has an effect which is certainly not beneficial, that indeed it seems to make children less "fit" physically as well as mentally than those who do not use coffee. If this be true, then some support is given to the modern movement which advocates the substituting of cocoa or chocolate for coffee as a beverage for children.

Exercise and Health. By Woods Hutchinson, M.D. New York: Outing Publishing Company, 1911, pp. 156.

That exercise and health are two words for the same state of being in the human animal, is the theme of Dr. Hutchinson's discourse. Exercise brings health, health brings a desire and a relish for exercise. Most of us underestimate the amount of exercise we can profitably take every day. Dr. Hutchinson says we need not less than two hours, preferably four. "The 'business,' so to speak, of exercise for the brain worker or indoor man or woman is to pump the blood through the tired brain and little-used muscles, wash out their fatigue poisons, burn up clean the wastes of the food necessary to supply working power, and get rid of all these through the lungs, the skin, and the kidneys. This process takes hours every day instead of minutes, and you can no more accomplish it in two or three ten-minute periods than you can keep up your working power on three tablespoonfuls of patent, pre-digested humbug in place of three square meals. Moreover, the only place to get rid of these waste poisons adequately from lungs and skin is in the open air."

With regard to much that is popular under the name of "physical culture," Dr. Hutchinson says, "The most dangerous feature of fads in physical culture is that by their narrowness and injudiciousness *they prevent you from getting enough of it!*" This is not the only current superstition in the domain of physiology which Dr. Hutchinson attacks. He explains just how weak hearts are strengthened by steady exercise, and how weak lungs are built up in the same way, and how both heart and lungs can be injured by too much rest. "Our real breathing," he says, "is done by the blood, not the lungs. Air in the lungs is like food in the stomach, of no use to the body until it is absorbed....The muscles that best develop the chest are those of the legs, because they are the largest masses which can be most vigorously and protractedly exercised." Further on he says, "An easy, swinging, elastic walk, or a bounding, springing run are a positive rest compared with prolonged standing at a desk, or even sitting in the rigid position often required for indoor work, with little opportunity to swing the limbs, or bend the back." And here Dr. Hutchinson strikes a blow at another superstition which is just beginning to lose its hold on the layman's mind, the popular belief as to the cause and cure of flat-foot. "We stand supported," he says, "upon two curving arches of bone, each reaching from the ball of the foot to the heel; and the curve of each arch is supported, not by bony or stony blocks of keystone shape, but by the incessant and elastic pull of muscle. Standing still tires out these muscles that support the arch far worse than walking does, and flat-foot, or the breaking of the arch, is one of the most painful and crip-

pling lesser defects to which the human body is subject. It is produced by standing and so-called sedentary occupations upon hard floors, at least ten times as often as it is by outdoor work....Permanent cure can be produced only by systematic massage and vigorous exercise of the muscles of the calf and the front of the leg, so as to give them strength to resume their natural support of the arch."

In a delightfully robust chapter called "Muscle Maketh Man," Dr. Hutchinson tells us how to "train for life," as he puts it. His programme covers the entire day, from morning bath to nine hours of sleep in an airy room and the next morning's bath, with breakfast in bed on Sundays and holidays. "Live like this," he adds, "and you will never know that you are old until one day you are suddenly dead." His advice as to eating is only too easy to follow; indeed it is the one part of his system which is already in full force among middle-class Americans. Dr. Hutchinson is not of those who believe that we are prone to eat too much. He says, "No nation has ever yet been known to get too much protein into its dietary....The man who would put beef twice a day upon the table of every working man in the country would be the greatest benefactor that the world has ever known," but in reading this we must remember that it is the opinion of a physician who believes that play is quite as essential to human welfare as is beef after play.

In a chapter on "The Real Danger of Athletics," we learn that the danger comes in stopping. "The building of man is *never* finished until he is dead....when we stop playing, we stop growing." In the next chapter Dr. Hutchinson discusses the kind of "Exercise that Rests," and deplores the fact that by Americans "Idleness has come to be regarded not merely as a negative fault, but as a positive crime.... Play must always be apologized for." He explains the scientific attitude toward work and fatigue, and shows "why, within certain limits, change of activity rests us." But sleep is sometimes even better than exercise. "Many a fatigued and exhausted business man or overworked housemother or teacher would be much more benefited by an hour's rest or sleep in a well-ventilated room—if possible in the open air—than by a brisk two-mile walk. The best possible short vacation is often to sleep late, take one's breakfast in bed, and loaf industriously all the afternoon."

Dr. Hutchinson is an acknowledged master of the art of speaking his mind, and it is a great charm of his book that it is so easy to quote, so easy to discuss with friends. One more passage must serve to conclude the present tasting, "Any method of life which will carry a man happily and efficiently until sixty-five or seventy can drop him in the lap of Mother Earth as speedily and as suddenly as it likes after that. Indeed, the more suddenly the better, for a full life and a sudden death are the greatest favors granted by the gods."

A. T.

The Psychological Clinic

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DR. DAWSON'S INDUCTIVE STUDY OF SCHOOL CHILDREN.

By Arthur Deerin Call,

District Superintendent Henry Barnard District, Hartford, Conn.

Dr. George E. Dawson, professor of psychology at the Hartford School of Religious Pedagogy, is doing a pioneer work of importance for all who are interested in the problems of public education. At least for us who have watched his quiet, scientific work with children of the Henry Barnard School for the last three years two things are manifest—first, that the inductive study of the mental facts of childhood is possible; secondly, that such an inductive study is essential to accuracy and definiteness of educational theory or practice.

The study to which I refer began with a few children who, early in November, 1908, were found in our school to be backward in their studies. The object of the undertaking was to determine, as far as possible, the cause or causes of a pupil's failure to profit by the work of the public school. The study has been individual in character, the concern being not primarily for statistics derived from a large number of cases, but rather for an explanation, through careful intensive analysis, of why a given pupil fails, with the practical purpose of helping him if possible. Its significance, therefore, will be found not so much in the statistics that have been accumulated, as in the light that has been shed upon the specific difficulties of individual boys and girls, and in the suggestions that, it is hoped, have been offered towards their relief.

The work has centered mainly in two groups of facts: (1) the mental constitution of the children, as revealing the immediate cause of their failures; and (2) the condition of their special senses, their nervous and muscular qualities, their general vitality, and their specific organic defects, if any, as revealing contributory or ultimate causes of such failures.

Name..... **Age**..... **Nationality**.....

School Grade..... **Room**..... **Scholarship**.....

Vitality	Height; Weight; Width of chest (calipers); Depth of chest; Width of hips; Width of shoulders; Lung capacity (Volume (spirometer); Expansibility (tape-line)); Heart action (phonendoscope); Strength (dynamometer); Endurance (ergograph); Nutritive condition; Use of drugs
Organic Defects	Crippled limbs; Natural deformities; Enlarged tonsils; Spinal curvature; Adenoids (rhinoscope); Condition of teeth
Nervous Defects	Chorea; Neuro-muscular incoördination; Over-action of facial muscles; Fidgetiness; Stammering
Motor Control	Walking; Tapping; Throwing; Drawing a straight line; Threading a needle
Special Senses	Sight (standard type, astigmatic chart, colored worsteds). Hearing (watch, whispering and acoumeter). Muscle sense (loaded-shells and kinæsthetic board); Touch (æsthesiometer)
Emotional Constitution	Pain-reaction (algometer); Cheerful or depressed; Affectionate or indifferent; Impulsive; Stubborn; Timid
Intellectual Constitution	Attention (Sanford's vernier chronoscope); Recall-memory (Jastrow's memory apparatus); Association-memory (word tests); Mental responsiveness (picture puzzle)
Parentage	Age of father; Age of mother; Health of father; Health of mother; Number of children in family living; Number dead; Health of children; Occupation of father; Wages of father; Father's habits
Home Surroundings	Location of home (street); Number of rooms in house; Sanitary condition; Occupation of child at home; Opportunities for play and amusement
Ethnological Traits	Circumference of head; Length of head; Breadth of head; Color and texture of hair; Color of eyes; Shape of nose; Character of mouth

Standard anthropometrical and psychological apparatus has been used, and exact quantitative measurements have been relied upon throughout in the conclusions drawn from the study. The following pieces of apparatus have been supplied by the school and are now being used in the various tests: (1) a Sanford's vernier chronoscope, for testing the attention and mental responsiveness of the pupils; (2) a Jastrow's memory apparatus, for testing their perception, mental imagery and memory; (3) a puzzle-test, for

SANFORD'S VERNIER CHRONOSCOPE.

DR. DAWSON MEASURING MENTAL RESPONSIVENESS BY MEANS OF THE CHRONOSCOPE. THE MEASUREMENTS ARE MADE IN HUNDREDTHS OF A SECOND AND SHOW HOW QUICKLY A CHILD CAN REACT TO A STIMULUS OF HEARING, SIGHT, OR TOUCH. THE RECORD IS AN AVERAGE OF FIVE TESTS.

determining the power of reasoning and application; (4) an æsthesiometer, for testing the sense of touch; (5) a kinæsthetic board, for testing the muscular sense, and judgment of form; (6) a set of visual charts, for testing sight; (7) a speed and precision apparatus, for testing the speed and accuracy of hand-movements; (8) a galvanometer, for testing the conductivity of the nervous system; (9) an algometer, for testing reactions to pain; (10) a spirometer, for testing lung capacity; (11) a dynamometer, for

testing strength and endurance; (12) calipers, for making head and chest measurements; (13) anthropometrical scales, for measuring height and weight; (14) an acoumeter, for testing acuity of hearing; (15) Holmgren's colored worsteds, for testing color blindness; (16) hand steadiness apparatus for testing nervous condition; (17) a set of verbal association tests for testing range of mental associations.

Forty-eight children have been carefully tested with this apparatus, as well as in other ways, as occasion has made advisable, an average of from four to five hours being given to each pupil. The card used by Dr. Dawson is shown on page 62.

While, as has already been stated, the value of this investigation primarily consists in the diagnosis of individual difficulties and in suggestions for their relief, certain facts are beginning to emerge which are not without significance for the further direction of our study, as well as for the solution of the larger problems to which it is related. These are summarized in tables I and II.

In addition to the above group of pupils thus studied in detail, the DeSanctis and Binet-Simon tests for defective children were applied to some forty pupils, too young or too undeveloped to meet the conditions of the more elaborate experiments. These tests were made, for the most part, under Dr. Dawson's direction by Miss Annie Fisher. The children averaged approximately six years of age. Their failures ranged from none to 50 per cent, with an average of 19 per cent. These tests were intended to push the problem of differentiating the defective child back into the very beginnings of school life. Accepting as the criterion of mental deficiency the failure to pass in one-third of these tests, 25 per cent of these pupils were found to be defective and of at least doubtful fitness for entering upon a public school course of study.

With a view to establishing norms of tactile and muscular sensibility, and of neuromuscular control among school children within the age limits of our study, Miss Fanny Kollock has tested normal children during one year. She has thus far completed the records of fifty boys and girls, with the following results:

Twenty-four boys, with an average age of about twelve years, required, on an average, 6.3 minutes to fit the blocks into the holes of the kinæsthetic board; while twenty-six girls, with an average of thirteen years, required 7.6 minutes. The girls thus required 1.3 minutes longer than the boys, indicating a somewhat duller muscular sensibility. In sensitiveness to touch, the same groups of children averaged 1.9 millimeters and 2 millimeters respectively, the boys, again, having a slight advantage. In neuromuscular control,

TABLE I.

Defects	Boys (Av. age 12 yrs.) Number defective	Girls (Av. age 13 yrs.) Number defective	Totals Number tested	Totals Number defective	Totals Per cent defective
I. In intellectual capacities:					
Attention and responsiveness	16	7	48	23	48
Perception and memory for words and numbers	16	12	..	28	60
Perception and memory for objects	10	5	..	15	32
Reasoning powers	18	9	..	27	60
One defect	11	6	..	17	35
Two defects	10	5	..	15	31
Three "	5	3	..	8	17
All four "	4	4	..	8	17
One or more "	30	18	48	48	100
II. In special senses:					
Sight	13	7	48	20	44
Hearing	7	3	..	10	21
Touch	14	9	..	23	48
Muscle sense	8	5	..	13	27
One defect	13	4	..	17	35
Two defects	6	4	..	10	21
Three "	4	1	..	5	11
All four "	2	1	..	3	6
One or more "	25	10	48	35	73
III. In motor ability	21	10	48	31	65
IV. Physical defects:					
Spinal curvature	15	8	48	23	48
Enlarged tonsils	7	6	..	13	27
Adenoids	6	2	..	8	17
Neglected teeth	15	4	..	19	39
One defect	12	5	..	17	35
Two defects	5	5	..	10	21
Three "	6	1	..	7	15
All four "	1	0	..	1	1
One or more "	24	11	48	35	73
V. In vitality:					
Lack of lung capacity	4	4	48	8	17
Poor nutrition	14	5	..	19	39
Lack of strength	6	5	..	11	23
Lack of endurance	12	8	..	20	42
Defective heart action	10	3	..	13	27
One defect	5	2	..	7	15
Two defects	7	3	..	10	21
Three "	6	4	..	10	21
Four "	2	1	..	3	6
All five "	0	0	..	0	0
One or more "	20	10	48	30	63

the average number of errors made in three tests was thirty-five for the boys and thirty-six for the girls. Here again the boys have a slight advantage. It is hoped to continue another year this experimental study of norms in the directions here indicated, and likewise in other directions where investigations among school children have not yet established standards.

While the statistical material of this study of backward school children does not warrant any very definite conclusions, the indi-

KINAESTHETIC BOARD.

FOR MEASURING THE TIME REQUIRED TO PUT EIGHTEEN BLOCKS OF DIFFERENT SIZE AND SHAPE INTO CORRESPONDING HOLES. THE BOARD CONTAINS LARGE AND SMALL TRIANGLES, SQUARES AND CIRCLES. THE RECORD IS AN AVERAGE OF THREE TESTS.

vidual character of the investigation has gradually shaped in our minds certain convictions which may here be set down, tentatively at least:

1. Among the children who fail in their public school work, there is an appreciable number who ought not to be in a public school at all. They are so defective mentally that they cannot profit by the ordinary course of study. The time of the teacher, usually all too full of urgent duties, should not be wasted upon

such pupils. Moreover, normal children should not be hampered in their progress by the burden of dull, and often disorderly, children in their midst. Such children need special, individual instruction, and should be in a school adapted for their needs. Usually they are not sufficiently defective to be consigned to state institutions for the idiotic and imbecile. They should be educated in their home communities, with the co-operation of their parents, and every city should have at least one special school fitted to do this kind of work.

TESTING SPEED AND PRECISION.

WITH A TAPPING BOARD, PENCIL AND ELECTRIC CONNECTIONS. MEASURING THE NUMBER OF TIMES THE CHILD CAN TAP IN ONE MINUTE WITH THE METAL PENCIL UPON A METAL DISK ⅛ INCH IN DIAMETER, AND THE NUMBER OF MISSES IN THE SAME INTERVAL. THE RECORD IS AN AVERAGE OF THREE TESTS.

2. Among children who fail in their public school work, there is a relatively large number who are misfits in the ordinary course of study. They are of a type of mind that can get knowledge through symbols only with great difficulty. They can learn through objects and through manual activities, and would, if properly trained, become educated in the best sense of that term. These children are not properly backward children at all. They

are merely children for whom our schools as yet make scant provision. If the public school must remain as it is, largely an institution for training in the symbols of knowledge, then these object-minded boys and girls ought to have schools of their own. An object school would solve the problem, and parents of children who are misfits in the ordinary school curriculum have a right and a duty to demand that the object school be provided for their children.

3. More important than any of these conclusions, as intimated at the outset, is the revelation that the inductive study of school children, on a much larger scale than perhaps heretofore dreamed of, is not only possible but mandatory if we are to accomplish with our instruments of public education what in the nature of the case should be accomplished.

4. So strong is our belief in the importance of this service that Dr. Dawson is now regularly engaged by our Committee as "Director of Child Study," giving to the work two days each week.

TABLE II.

Causes of backwardness	Boys (Av. age 12 yrs.) Number defective	Girls (Av. age 13 yrs.) Number defective	Totals		
			Number tested	Number defective	Per cent defective
Primary mental defects	5	6	48	11	23
Mental defects induced by physical defects	2	2	..	4	8
Mental defects induced by low vitality	8	5	..	13	27
Mental defects induced by sense defects	3	1	..	4	8
Mental defects induced by immoral habits	2	0	..	2	4
Primary moral defects	3	0	..	3	6
School work not suited to aptitudes	7	4	..	11	23
Backwardness from all causes	30	18	48	48	100

ELIMINATION AND VOCATIONAL TRAINING.

By G. W. Gayler,

Superintendent of Schools, Canton, Illinois.

The American people have committed themselves irrevocably to the doctrine of a universal education. They have created a system of public school education so extensive in plan that it leads by successive steps from the first grade of the elementary school to graduation from the senior year of a university course. Taxes have been levied, buildings have been erected, and teachers employed. This splendid system of education was created and is maintained to-day that all the children of all the people may receive the benefits of an education which will make them more efficient workers in their social and industrial world.

Reports from practically every section of the United States, as given by Ayres in "Laggards in Our Schools," by Strayer in Bulletin No. 5, 1911, of the United States Bureau of Education, and other investigators, show that a very small per cent of the whole number of children pass through the entire system and receive the full benefits of it. The records of our public schools to-day show that fewer than one-half of the children who start in the first grade get farther than the sixth grade.

In a small city in central Illinois last year there were enrolled 2019 children. Of this number 1575, or 78 per cent of all children, were in the first six grades, while 444, or 22 per cent, were in the last six grades. In this school 1803 children were in the eight lower grades, and 206 in the high school. A city in northern Illinois shows a total enrolment of 2043 in the eight grades, 1802 being in the first six grades and 241 in the seventh and eighth grades. A city of south central Illinois which has a grade enrolment of 1538 has 1239 in the first six grades and 299 in the seventh and eighth grades. A city of western Illinois has a total enrolment of 3732. Of this number 417 are in the high school and 3315 in the grades. In the first six grades the enrolment was 2724. In the last six grades it was 1008. These conditions I take to be fairly representative of conditions throughout this state, and show that the public schools in a very large measure are turning out a sixth grade product.

These facts bring us face to face with the biggest problem before the educational public to-day—the problem of universal

education in the sense that all the children of all the people are not receiving the preparation for life which the public school is in duty bound to give. It is more important than any question of school theory, or school method, and more important than any question of mere school management. The public school is not realizing the end for which it was created. It is not giving that universal education which is necessary in a democracy where all have a voice in the management of the social institutions. A short time ago Dr. Draper, in an address before the National Educational Association, said: "When but one-third of the children remain to the end of the elementary course in a country where education is a universal passion, there is something the matter with the public schools."

Why do these children drop out of school? So far as statistical information bearing on this point is concerned, little is available, and that little is neither very reliable nor very helpful. Some of the reasons given are,—to go to work, to help at home, visiting, sickness, lack of ability, removal from city. These do not go far enough in explaining conditions. The causes seem to lie deeper than is generally believed.

Whenever personal investigations have been made, many parents of eliminated children state either directly or indirectly that the earnings of the children are needed. This is especially true of mining and manufacturing districts.

At the beginning of the present school year a woman called at the office of the writer to secure an "age and school certificate" for a boy who had just reached the age of fourteen. She stated that for five or six years she had been doing two washings a day for six days in the week, by this means earning enough money to support the family and send the children to school. When I talked to her of the advisability of keeping the boy in school, how this would help him in after life, and how he would be handicapped later if taken out now, she answered by stating that she had been looking forward to the time when her burden could be somewhat lightened by his help, but said further that she thought she could manage a little longer if necessary.

This is only one of the many cases which illustrate the necessity of children dropping out to help parents earn a living. It is not my purpose here to discuss the social conditions which require this sacrifice of young manhood and young womanhood. The only purpose is to show that it is one of the causes for the large number of eliminated children at the age of fourteen.

A second cause, one receiving much more attention now than it did a few years ago, is the ill health of children. Sickness or chronic ill health often keeps the child out of school for days and weeks, or causes such irregular attendance that it is impossible to make the percentages necessary for going on with the class. This retardation means often doing work with smaller children. When these retarded pupils reach that period of life when rapid changes take place, when they cease to be children, they wish to associate with companions of their own age, they feel humiliated among the smaller children and seek to get out of school at the earliest possible moment. These retarded boys and girls are the ones who keep our truant officers busy rounding them up and placing them in school. After the age limit is reached they leave school.

Closely allied with the preceding group are the defectives, who because of their defects drop behind from year to year and finally because of ill-health drop out of school entirely. Within the last year or so many cases have been called to my attention where children have not made progress in school work on account of defective eyes, defective ears, adenoids, or some other cause which hampers them in their movement through the grades, and finally results in elimination. A proper medical examination with suggestion to parents will help to lessen the cases of elimination due to this cause.

But we have some children not in ill health and with no recognizable physical defects, who from some cause are unable to do the school work and who drop out as soon as they arrive at the age when the law permits them to go to work. Some of these fail to adjust themselves to the school, and although in everyday affairs out of school they seem as intelligent as the ordinary child, in school they fail to make progress. They are humiliated, they lose confidence, they are convinced that they are failures. These children are usually the ones who are 'born short' in some particular kind of ability, most often in literary work, for which they see little use in the practical affairs of life. As Mr. Ayres says: "We know them in the schools as the children who are always behind a little physically, a little behind intellectually, and a little behind in the power to do. Such a child is the one who is always 'It' in the competitive games of childhood. He cannot jump so far as the other boys, he takes a step more in getting across the street from curb to curb when the boys are seeing in how few steps they can do it. He always falls below; he falls down—he knows he is going to fall."

There is a pretty widespread criticism made by the best friends of the schools that they are trying to do too much and that standards are too high; that these standards are such that only the children of the best intellectual ability can do the work, that the average or the dull child has but little show to do it. When we consider that over 57 per cent of our children are behind the normal grade, as many as 30 per cent being behind two or more years, it looks as if there were some ground for the criticism.

In an eighth grade in one of our city schools last year 49 pupils out of a class of 110 failed in grammar. The students, as far as I have been able to find out, were average boys and girls of fair to good intellectual ability. They made fair grades in other subjects, but on account of the high standards in the subject of grammar almost 50 per cent of them failed. At the beginning of the present year when the roll was called only a small fraction of the 49 failures reported. Of the 59 who did not fail in the grammar work a much larger percentage appeared and are continuing the work in the high school. High standards, strict grading, without taking into consideration the amount of effort the children put forth, together with the fact that many times there is a lack of real inspirational work on the part of the teacher, may account for a larger percentage of our eliminated pupils than we are ready to acknowledge.

There is a pretty well defined opinion on the part of many parents that the schools are not giving the greatest possible service to their children, and that what they get in school is of little value in the preparation for the life that they must live outside of school. The farmers say that there is not much in the school that prepares the farmer lad for living a better life than his father lived. The day laborer and the mechanic make the same criticism, and say that there are very few things in the public schools that prepare their children for service in manual and industrial work. Ninety-six per cent of the world's work is manual or industrial, and 4 per cent is professional. In other words, 96 per cent of the workers are engaged in manual and industrial pursuits and 4 per cent are largely now, as they have been in the past, facing toward the university, with courses of study looking toward a professional more often than toward an industrial career.

This idea that aside from the rudiments of the three R's there is nothing worth while in the schools for the children who will do manual and industrial work in after life, has a great deal to do with children dropping out of school. Any study of elimina-

tion and retardation must sooner or later confront us with the necessity of changing our course of study so that it will face toward the actual life of the majority of children after they leave school rather than toward the college or university. The school must take account of the life around it as well as differences in tastes and abilities of pupils. The time has come when, beginning about the sixth and seventh grades, our curriculum must be modified to suit child life. It must take on more industrial and vocational work and look less to literary and professional work if the school is to achieve the thing it was created to do,—educate all the children of all the people. "The ideal of education in a democracy will be realized when it is possible for each child to work to the maximum of his capacity and to secure during those years devoted to school activity that training which will best fit him for his life's work."

ATHLETICS AND THE BOY.

By Charles Keen Taylor,
Philadelphia.

Every spring and fall most parents are asked this question: "Shall your boy play baseball, football or indulge in track sports with his fellows?" If the writer were asked such a question, and if the boy in the case were under seventeen, the answer would be "It depends."

It is usual for people to take extreme views in this matter. Some point to the number yearly killed and disabled by football, and the still greater number who are victims of baseball, and loudly declaim against both games. On the other hand, there are those who declare that it is by means of such sports that boys acquire manliness, ruggedness, health and other unmixed blessings. The majority of mothers belong to the first class, while a fair balance of fathers are in favor of these sports. But it is the schools themselves, from principals and headmasters down, who are the real supporters of the second extreme view, and for several reasons; for nowadays, unfortunately, a school's reputation and the estimation in which it is held are determined in no small degree by its athletic prowess. There follows much talk concerning "school-spirit," playing for the school, victory at any cost, and a general urging of every boy to join the squads and try for the teams, with often an utter disregard of the physical fitness of the candidate.

There is something to be said on both sides. The number of deaths and minor accidents every year among boy athletes is a matter for serious consideration. It means that every care and intelligent supervision should be given the boys indulging in these sports. If the mothers are doubtful as to the quality or quantity of such care and supervision, they are right to object in the strongest possible manner.

On the other hand, the fathers are apt to realize how important out-door exercise is to the growing boy, and to encourage the boy to take part in such sports as are open to him. Then the school managements know that healthy, out-door exercise makes their pupils better boys, that school athletics are a strong influence against smoking and other vices of boyhood, and that by competition boys are greatly stimulated to do their best and to make sacrifices for the benefit of their team or their school which otherwise they would not dream of making.

The writer's answer therefore remains the same as that of most careful, intelligent parents: "It depends."

It depends upon the amount and quality of the care and supervision given the boys in their sports, and this is the crux of the whole matter. Having had unusual opportunity for studying conditions in quite a number of typical schools in widely separated localities, I have come to the conclusion that it is in the inadequate care and supervision generally given that opponents of school-boy athletics find strong and irrefutable arguments. I claim that even in the large private academies such intelligent supervision is generally lacking, and thus there are more football fatalities among school boys than among college men, as was shown, for instance, in the statistics for the last football season.

I do not mean to say that the supervision is a failure in every particular. Indeed, the officials in control of school athletics are generally sincere and painstaking men. They arrange that the boys keep good hours, and thus learn a beneficial habit; they see to it that the boys do not smoke, and explain why smoking is harmful; they give admirable talks concerning diet, training, bathing, sleeping and the like, all with excellent results; but, in general, they fail to guard against any boy playing on the team, or on the "scrub" team, who is not physically fitted for it in every way. And here lies the danger in school-boy athletics. It is true that most private schools and a few public schools have compulsory physical examinations. The public schools are the greatest sinners in this respect. In a city like Philadelphia, some of the high-school boys may get a cursory examination, but for the grammar-school boys there is no examination worthy of the name. Even this, however, is not the main point, though it should be made a rigid matter of routine to have the hearts of all candidates examined. This, by the way, is something that the parents can have done themselves. The great common failure is in regulating the size, age and weight of boys who make up teams, and this is the basis for the most serious complaint.

First of all, on a team, and on the "scrub" with which that team practices, the boys should be of nearly the same age. The reason for this is that they have approximately the same ability to withstand such physical shocks as are common to the ordinary athletic games. Introduce a sixteen-year-old boy into a team of fourteen-year boys, or into the team opposed to them, and you have a factor of considerable danger, because a shock serious enough to disable the younger boys might well be without effect upon the older one, for he has had two years in which to strengthen

and harden his ligaments and his bony framework. Even though his size should be that of his younger competitors, his greater resistance would force them to put forth an excessive amount of energy in order to compete with him, while he can easily disable a younger boy by methods which would have no serious consequences had the boy been of his own age.

A far more serious, and far more common mistake, however, is allowing younger boys to play with older ones—a boy or two of fourteen, for instance, playing on a team of boys aged sixteen, or older. Especially in football is this danger very great. The mere weight of these older and far more firmly-knit boys in running into or falling over the younger boys is capable of working serious injury. The younger boy, as has been said, no matter what his actual size may be, lacks the physical resistance necessary to meet such shocks. I have seen many accidents among school boys, mostly in football, and the great majority were just such cases—younger boys playing with or against older ones. You can see why mere size and weight are important considerations. You may have a team in which all the boys are of one age, say fourteen or fifteen, but the weights of these boys may vary by thirty, forty or more pounds. The objection against one boy being so much heavier than another is his power of injuring, and greater resistance against injury; for by simply falling over the back of one of the lighter boys he might injure him for life, something that probably would not occur were the boys equal in weight. The majority of accidents, moreover, show that it is usually the light, younger boy, playing with older and heavier lads, who is injured in school-boy athletics, especially in football.

One typical case comes to my mind. This boy was not quite sixteen years old. His team-mates and competitors in this particular game averaged eighteen years, yet the boy was an excellent athlete and quite as accomplished in this respect as his fellows. But, of course, his frame lacked the resistance of the eighteen-year-old boys to shocks, such as one must meet with in football. Often a boy escapes injury under such circumstances. If so, however, it must be attributed to good fortune. This particular boy was tackled in the usual manner, and had an opponent fall over him—things that would have been without serious effect upon one of the older boys. His spine not being capable of withstanding such an excessive strain, received an injury which, seemingly slight at first, has made his existence one of long, lingering, absolutely helpless invalidism, for he is not able to move his jaw or even so much as a finger.

Another case occurred several years ago. An exceptionally able boy, not quite fourteen, unusually big and strong for his age, was made quarter-back upon the first team of a large academy. His age was nearly four years below the average of the team. He played all through that season, and did remarkably well, and, though he escaped permanent injury, there was not a game in which he was not "laid out" one or more times, knocked down and often rendered unconscious by shocks which his older mates would hardly have noticed. Even though he has thus far escaped permanent injury, he cannot avoid a weakening of his whole physical

A WELL CHOSEN TEAM.
THE BOYS ARE VERY NEARLY OF AN AGE AND WEIGHT.

system on account of its being called upon so early to sustain an excessive strain. Another boy, a year older, was urged to try for the same team. He did so, and for over a year he has limped slowly about the streets with one leg permanently injured.

I might go on and multiply such cases concerning football. There is no end to them, for it is a most common thing—this placing of young "stars" on teams of older boys. Even where the trainers are careful concerning the teams themselves, they allow the younger boys to play on the "scrub," where the danger is greater than ever, for here the picked boys of a school play against the less fit, and the danger to the younger boy is greater than if

he were playing on the team itself. It is the boy on the "scrub" who is exposed to the greatest danger.

What is true of football, is true, though to a lesser degree of course, of baseball and of track sports. In these last, by competing with older, more enduring lads, a younger boy may go beyond his strength, and be permanently injured. As a general thing track work and running are excellent exercise, and deserve all possible encouragement, but the older boy makes a standard which forces the younger one to excessive exertion, and enlargement of the heart is no uncommon result.

Yet all these sports are splendid things in themselves. The coming of athletics into schools has done wonders not only for the morals of the boys, but for their actual physical condition. I have taken a great number of measurements and records which show how a boy will gain in strength, endurance, and in lung capacity and power in a football season. As a lover of boys, I have taken care of no small number of boy teams, and particularly football teams, and yet not a member of any of these teams has ever had an accident which could rightly be called such, perhaps for the simple reason that the following rules were observed:

1. All the members of a team should be approximately of the same age and size, and there should be no great disparity in weight between any of the boys.

2. In arranging for games with other teams it was made a condition that the other teams should have no member older or heavier than the oldest or heaviest of the home team.

3. All candidates had to undergo a thorough physical examination, no one being permitted to play who had any defect likely to be affected by the sport.

These same rules applied to the "scrubs," and also to the baseball and track squads. The accompanying photograph will give an idea of an ideal boys' "squad," and how nearly they approximate one age, size, and weight.

So when the question comes up, as to whether parents will allow their sons to join a team for any kind of athletic sport, the proper thing for them to say is, "It depends", and then make it a point to find out whether the men in charge of the teams have certain safeguarding rules like the ones quoted. If they do, then by all means encourage the boy to play, for he will be greatly the gainer by so doing. If they do not, then refuse the boy permission, and lose no time letting the trainer or coach, or, better still, the school principal or head-master, know what considerations have led to this decision.

RETARDATION IN THE ELEMENTARY SCHOOLS OF PHILADELPHIA.

By Byron A. Phillips, Ph.D.,
Philadelphia.

In the following study all pupils will be classed as retarded, who are one year or more behind the "normal" grade for their age. The universality of retardation is what first strikes the student of the problem. Whenever there is a school system, this phenomenon is present. Upon further consideration, however, we must recognize that retardation is dependent to a great extent upon the natural inequalities of the human mind, which may be of any grade from the lowest to the highest intelligence. At one end of the series we have the profound idiot, at the other the genius. Somewhere between these extremes we find the average or "normal" mind. The curricula of the public school systems are supposed to be adapted to this average, normal, or standard. Of course this average mind will not be one determined by a strict criterion, but will range within certain limits. Minds below the lower limit will not fit into a school system based upon this average, and a certain amount of retardation will always exist. Investigation, however, reveals the fact that many pupils of average intelligence are retarded to such an extent that the school systems have been called in question as inefficient.

Besides natural inferiority of mind, there are several other factors which cause retardation, the most important of these being irregular attendance and lack of proper medical inspection. These factors are present in all school systems to a greater or less extent, yet there are great differences in the amount of retardation among the different systems.

In studying the retardation of any system, the relation of the retarded to the normal and to the accelerated should be taken into account if we are to obtain an adequate idea of the relative worth of the system.

The present study is an investigation of retardation in the elementary public schools of Philadelphia, and a word as to the organization of the system will make clearer the significance of the results. At the head is a Superintendent of Public Instruction, who is assisted in his duties by four Associate Superintendents. The city is divided into ten districts, each under a Dis-

trict Superintendent. Each district includes within its jurisdiction several contiguous political wards. In all there are 232 schools having an average enrolment of 81,768 boys and 82,127 girls, a total of 163,895 pupils. Age tabulations are taken on the number of pupils in actual attendance on one day of the year, and the regulation retardation blank is used for this purpose. A child eight years or over in the first grade is considered retarded; nine years or over in the second grade, and so on through the grades. In the present study the age tabulations for 1909 are used as a basis, and occasional reference is made to those of 1908 and 1910 for comparison.

Retardation for the Years 1908, 1909 and 1910.

From Dr. Oliver P. Cornman's study of the "Retardation of the Pupils of Five City School Systems,"[1] we see that the different cities vary greatly in the percentage of retardation. In a more detailed study of any particular system it is desirable to ascertain whether the rate of retardation is uniform throughout the system or not. The ten districts readily lend themselves to such a study.

In 1908 the highest amount of retardation for boys was 50.6 per cent in District 3, and the lowest 37.9 per cent in District 10, a difference of 12.7 per cent; for girls 46.5 per cent in District 4, and 32.8 per cent in District 10, a difference of 13.7 per cent; and for both 48.3 per cent in District 3, and 35.4 per cent. in District 10, a difference of 12.9 per cent.

In 1909 we find the following range of difference in the amount of retardation in the districts: boys, from 48.1 per cent in District 3, to 35.9 per cent in District 10, a difference of 12.2 per cent; girls, from 45.8 per cent in District 3, to 30.6 per cent in District 10, a difference of 15.2 per cent; both, from 47.0 per cent in District 3, to 33.3 per cent in District 10, a difference of 13.7 per cent.

In 1910 the greatest amount of retardation for boys was 48.4 per cent in District 3, and the least 34.6 per cent in District 7 a difference of 13.8 per cent; for girls 45.7 per cent in District 3, and 30.7 per cent in District 10, a difference of 15 per cent; and for both 47.6 per cent in District 3 and 33.0 per cent in District 7, a difference of 14.6 per cent.

The other eight districts range in retardation between the extremes just cited. It is apparent that different causes are working in different degrees in these districts to cause the variations in the amount of retardation among them. The following table

[1] THE PSYCHOLOGICAL CLINIC, Vol. I, 1907-08. p. 245.

summarizes the retardation of the ten districts for the years 1908, 1909, and 1910:

TABLE I.

RETARDATION BY DISTRICTS

District	1908			1909			1910		
	Boys	Girls	Both	Boys	Girls	Both	Boys	Girls	Both
1	46.4	43.0	44.7	41.9	41.7	41.8	41.0	39.0	40.1
2	47.1	45.3	46.2	45.9	43.2	44.5	44.7	42.7	43.7
3	50.4	46.0	48.3	48.1	45.8	47.0	48.4	45.7	47.6
4	48.8	46.5	47.6	46.0	44.4	45.1	42.9	40.4	41.6
5	.....	.....	.....	46.1	43.3	44.7	42.6	41.7	42.1
6	42.0	39.5	40.8	37.2	37.3	37.2	35.6	35.6	35.6
7	40.3	35.5	38.0	36.8	34.2	35.5	34.6	31.5	33.0
8	42.7	37.0	39.8	40.1	36.9	38.5	37.9	34.5	36.2
9	38.3	35.3	37.0	37.5	34.5	36.0	36.1	32.7	34.4
10	37.9	32.8	35.4	35.9	30.6	33.3	36.1	30.7	33.3
Totals	44.3	40.4	42.4	41.5	39.2	40.3	40.1	37.6	38.8

Studying this table we note its remarkable regularity. Each year in each district the retardation of the boys is less than that of the previous year; each year in each district the retardation of the girls is less than that of the previous year; each year in each district the totals are less than the totals of the previous year. We can almost see retardation being forced down by some external cause. Since the problem of retardation is occupying the attention of most departments of superintendence, we may infer that this decrease is due to supervision. The following table summarizes the retardation statistics for the three years in question:

TABLE II.

	Boys.	Girls.	Both.
1908	44.3	40.4	42.4
1909	41.5	39.2	40.3
1910	40.1	37.6	38.8

Not only the districts but the grades, with a few trifling exceptions, show the same uniform reduction in retardation.

TABLE III.

RETARDATION BY GRADES

Grades	1908			1909			1910		
	Boys	Girls	Both	Boys	Girls	Both	Boys	Girls	Both
8.....	36.1	35.9	36.0	31.2	31.3	31.3	30.2	30.5	30.4
7.....	39.3	37.0	38.1	35.5	35.9	35.7	36.5	36.6	36.6
6.....	52.5	47.3	49.0	48.1	47.1	47.6	47.7	49.6	48.7
5.....	56.6	52.0	54.3	54.8	54.1	54.5	54.8	51.3	53.0
4.....	57.1	53.5	55.3	56.2	51.2	53.7	52.9	48.7	50.8
3.....	54.0	47.3	50.6	50.5	45.5	48.0	48.4	42.7	45.5
2.....	43.4	37.3	40.4	39.1	34.6	36.9	36.3	31.4	33.9
1.....	21.9	20.2	21.1	20.1	18.5	19.2	19.1	17.1	18.1
Totals.....	44.3	40.4	42.4	41.5	39.2	40.3	40.1	37.6	38.8

No one familiar with the problem of retardation would look for equal amounts of retardation in the different grades. The grade figures for the whole city, arranged in order of the amount of retardation, are for 1909:

TABLE IV.

5th grade	54.5 per cent
4th "	53.7
3d "	48.0
6th "	47.6
2d "	36.9
7th "	35.7
8th "	31.3
1st "	19.1
Total	40.3 per cent

The figures for 1910, although somewhat smaller, follow those of 1909 in order of grades.

Summary:

(1) The ten districts vary considerably among themselves in amount of retardation.

(2) There has been a uniform reduction in the amount of retardation during the past three years in the city as a whole, in each district, and with a few exceptions in each grade.

(3) Supervision is probably an important factor in this reduction of retardation.

Attendance.

Some investigators have considered attendance to be the leading factor in retardation. A comparison of retardation figures with the statistics of attendance given in the Superintendent's annual report, fails to reveal any correlation. For 1909 District 3 has the greatest amount of retardation, 47.0 per cent, and an average attendance of 90.9 per cent; while District 10 has the lowest retardation, 33.3 per cent, and an average attendance of 89.9 per cent. The ten districts show the following percentages of retardation and attendance respectively:

TABLE V.

District.	Retardation.	Attendance.
3	47.0	90.9
4	45.1	89.2
5	44.7	88.3
2	44.5	89.8
1	41.8	89.9
8	38.5	88.8
6	37.2	88.6
9	36.0	89.3
7	35.5	90.1
10	33.3	89.9

In order to obtain a measure of the general tendency of a relationship between two variable quantities with unknown zero points and units directly incommensurable, it is necessary to find the coefficient of correlation. The Pearson method obtains as its measure of the relationship a single number which may be anywhere between 1.00 and —1.00. The method of calculating the Pearson coefficient of correlation is to multiply the deviation of each observation from the average in one trait, by its deviation from the average in the other; to add the products thus found and divide the sum by the number of cases times the standard deviation of the first trait times the standard deviation of the second trait. That is, the coefficient of correlation

$$r = \frac{\Sigma\, x.\ y}{n\ \sigma_1\ \sigma_2}$$

The coefficient of correlation obtained by this method for the relationship between retardation and attendance for the year 1909 is .05, which signifies practically a lack of correlation. A study

of the grade figures shows a similar lack of correlation between the percentages of retardation and of attendance. From this it would seem that attendance is a minor factor in causing retardation, but this is evidently untrue, for two reasons. In the first place the percentage of retardation is being compared with the percentage of attendance for the same year. The attendance in any year cannot be a cause of retardation for the same year, although percentages of attendance vary but little from year to year. Secondly, the method of calculating attendance is apt to convey a false impression of the actual conditions in the various schools and districts. The attendance here, as in most school reports, is given in the form of a per cent of the average number belonging or the average number present for month and year. In such a calculation a difference of one or two per cent may mean a difference of hundreds of half-day attendances, and even tenths of a per cent may mean no small factor. No doubt the true way to estimate the exact influence of irregular attendance on retardation would be to keep a record of the number of half-day attendances for each pupil and compare the results with the promotion record of the same pupil.

It is to be noted that District 3, with the highest percentage of retardation, is a compact foreign district; while District 10, with the lowest percentage, is a rural American district, so it would seem that other factors, in this case the nature of the sociological unit, may overbalance the factor of attendance.

The influence of attendance may be seen by comparing the attendance of the colored schools with that of the district in which they are located. The J. Miller School has an average attendance of 83.7 per cent, District 1 an average attendance of 88.3 per cent; the Pollock School has an attendance of 83.5 per cent, District 3, 90.4 per cent; the Catto School has an attendance of 80.7 per cent, and the Ramsay School, 76.3 per cent, District 4, 87.7 per cent; the Vaux School has an attendance of 76.0 per cent, District 6, 87.6 per cent; the Hill School has an attendance of 80.2 per cent, the Meehan School, 80.0 per cent, District 9, 88.7 per cent; the Wilmot School has an attendance of 84.7 per cent, District 10, 89.0 per cent. When retardation in the colored schools is discussed it will be seen that in every case it is approximately from 10 to 20 per cent higher than that for the district.

Summary:

(1) The method of reckoning attendance used in compiling school reports gives results which are of small value for statistical purposes.

(2) While the tables do not show any correlation between retardation and attendance, no doubt such relationship exists, and is an important but not the predominating factor in causing retardation, being overbalanced in various districts by a single potent factor or several factors working together.

Retardation in Relation to the Sociological Unit.

The city of Philadelphia spreads over a considerable area. Originally many parts of the present city were towns in themselves, which have been incorporated into the city in the course of its growth. Many of these sections still retain their old characteristics. The center of the city contains the great business section. South of this we find the foreign element, consisting mostly of Italians and Russian Jews. In the northeast there is a great factory district, in the northwest a wealthy residential district including Tioga and Germantown. West Philadelphia is characterized by the homes of the average American workingman.

The ten districts, generally speaking, may be said to have the following characteristics: District 1, rather poor social class working in factories in the 40th and 36th wards, with a better residential section in the 46th and 27th wards; District 2, Americans of the lower class, with a large foreign element; District 3, almost entirely foreign, with a considerable colored element; District 4, business section, old aristocratic section, large colored element, and west of the Schuylkill residential; District 5, residential, with large colored element, business section; District 6, large foreign element, large colored element, poor laboring class, and in the 32d ward a better residential section; District 7, factory section; District 8, good residential section, also factories; District 9, good residential section with one factory ward; District 10, rural outlying district, factory districts with small settlements of foreigners. We can readily see that District 3, composed almost wholly of foreigners, and District 4, with a large negro element, have the greatest amount of retardation; and that Districts 2, 5 and 1, with a considerable foreign element and poor home conditions, follow. District 6, although having a large foreign element, has a counterbalancing factor in a better residential section. District 8, besides a large residential section, has a considerable factory element to augment the retardation. District 7 has a low percentage of retardation, although of a rather low social order, but its low rate of retardation will be seen to be due in part to the high elimination rate and to the absence of the negro element. Districts 9 and 10 with low retardation rates are partly rural and residential.

We can see that each district is too large to permit us to establish a relation between the social condition and retardation, except in a general way. Each district, however, is composed of a number of political wards, some of which are nearly homogeneous socially. In District 1 the retardation is 41.8 per cent, the wards with poor social conditions showing about 3 per cent more retardation and the better residential wards about 3 per cent less. For District 2, with 44.5 per cent of retardation, the ward retardation is fairly uniform. In District 3, with a retardation of 47.0 per cent, the greatest variation is in the 30th ward, which has 42.9 per cent. In District 4, with a retardation of 45.1 per cent, the 7th ward has 62.2 per cent (colored), and the 9th ward 57.8 per cent. The latter is a business section with very poor and heterogeneous elements in the smaller streets. In District 5 the retardation is 44.7 per cent, and shows the 10th ward with 53.7 per cent of retardation. This is also a business section with many apartment houses, and with a poor social element in the side streets. District 6, with 37.2 per cent of retardation, shows 45.1 per cent in the 14th ward, which has a considerable negro element besides a large number of foreigners. The 32d ward, which is a very good residential section, has a retardation rate of only 33.6 per cent. District 7, with 35.5 per cent of retardation includes the factory wards, and there is not much difference in the percentage of retardation among them. District 8, with 38.5 per cent of retardation includes the 21st ward with 34.3 per cent, showing the effect of rural conditions. District 9, with 36.0 per cent of retardation, shows the 22d ward with 40.1 per cent. This ward includes two colored schools. The 43d ward has a retardation rate of 34.6 per cent. This is a good residential section. District 10, with 33.3 per cent of retardation, shows 29.9 per cent in the 25th ward and 37.3 per cent in the 45th ward. The former is a factory district, which has a rather low rate of retardation owing to the high elimination, while the latter contains a large percentage of foreigners, with a number of parochial schools, which always increase the rate of retardation.

Many wards are differently constituted socially in their various parts, so that it would be profitable to investigate further the separate schools in each ward. The table on page 87 gives in more detail the social components of District 6.

District 6 comprises five wards. In the 12th ward, which contains only two colored schools, the retardation is 34.8 per cent, although the schools contain 80 and 90 per cent of foreigners, but

TABLE VI.

Wards and Schools	Ward Retardation	Divisions G	P	K	T	Number	Retardation	Social Components
12th	34.8							
Mifflin		0	17	2	19	821	32.3	Foreign of low social condition, 90 %.
Paxson		0	21	4	25	1088	36.6	Foreign of low social condition, 80%.
13th	41.8							
Warner		0	13	2	15	639	37.7	Foreign of low social condition, 80%, with slight colored element.
Wyoming		18	5	1	24	927	44.1	Foreign of low social condition, 80%.
14th	45.1							
Hancock		10	17	2	29	1256	47.4	Residential of lower order, colored 14%, foreign 30%.
Spring Garden*		0	7	2	9	386	28.0	Foreign of low social condition, 75%.
Vaux		1.5	3.5	1	6	205	66.3	Colored school.
20th	40.6							
Lynd		8	13	2	23	984	44.3	Residential of lower order, 25% colored, 70% foreign.
Penn		0	12	3	15	619	36.6	Foreign of lower order, 80%.
Rutledge		17	12	1	30	1323	38.1	Residential, 10% foreign, negroes.
Webster		0	10	1	11	475	32.3	Residential of lower order, 40% foreign, negroes.
Widener		12	9	0	21	937	44.2	Residential, 10% foreign 12% colored.
32d	33.6							
Allison		3	11	1	15	615	29.0	Residential of higher order, good conditions.
Blaine		18	9	0	27	1201	35.7	Residential of higher order, 10% foreign.
Camac		5	12	2	19	838	38.9	Residential of higher order.
Claghorn		16	10	2	28	1235	33.5	Residential of higher order, 10% foreign.
Singerly		11	10	0	21	957	36.5	Residential of higher order, 5% foreign.
Stokley		0	11	2	13	556	21.5	Residential of higher order, very good conditions.

*Spring Garden School has grades 1 and 2 only.

these schools contain grades 1 to 4 only. In the 13th ward the Warner School, with 80 per cent of foreigners, has 37.6 per cent of retardation. The Wyoming School has 44.1 per cent of retardation, about the average percentage for schools having a large foreign element. The schools of the 20th ward have a rather low percentage of retardation, considering the social components of the schools. The Lynd School has 44.3 per cent of retardation, with 70 per cent foreign and 25 per cent colored. The 32d ward shows a considerable decrease in retardation, the ward retardation being only 33.6 per cent, with no school varying much from the average except the Allison School, with only 29.0 per cent of retardation, and the Stokley School with 21.5 per cent. These schools are not fully graded, and draw their pupils from very good residential districts.

We see that city, district, ward, and school are made up of distinct sociological units. In each of these units the home conditions are widely different. In those districts where retardation is greatest, the sociological unit proves to be the one in which home conditions are most unfavorable and even antagonistic to educational influence. A course of study has been prescribed for the city as a whole, as if the various districts were homogeneous units, equal sociologically and intellectually. This course of study is to be followed as closely for the foreigners in District 3, as for the native Americans in District 10. Can we expect equal results when we apply the curriculum inflexibly to these widely divergent social units? We must conclude that retardation is in a great measure the resultant of unfavorable home conditions, combined with an inflexible curriculum.

Supervision may overcome to a certain extent adverse conditions, by taking these facts into consideration. The standards of requirement must be differently applied to the different sociological groups. In District 6, for example, we expect to find a large percentage of retardation, for here are a large foreign element, a large colored element, and (with the exception of the 32d ward) poor social conditions; yet in this district with a comparatively poor element from which to draw, we find a comparatively low rate of retardation. Why is it that the retardation in schools with 60 to 80 per cent of foreigners does not begin to be as great as that in schools in other districts where conditions are approximately the same? This district has been under the superintendence of one

who has been especially interested in the problem, and it would be fair to say that the course of study has been interpreted less rigidly and more in accord with the needs of the sociological unit.

A closer study of the colored and foreign elements brings to light facts which substantiate the conclusions already drawn.

The Colored Element.

In most of the schools of Philadelphia, white and colored pupils are mixed in varying proportions, according to the district. There are nine schools for colored children exclusively. The following table shows a surprising contrast between these schools and the others:

TABLE VII.

RETARDATION IN THE COLORED SCHOOLS

School	District	Divisions				Grades	Number	Retardation	Attendance
		G	P	K	T				
J. Miller.....	1	0	2	1	3	1–4	148	68 2	83.7
Pollock.....	3	0	10	1	11	1–4	413	60.6	83.5
Catto.....	4	1	6	1	8	1–5	336	67.3	80.7
Ramsey.....	4	0	9	1	10	1–4	434	70.9	76.3
Purvis.....	4	0	1	0	1	1–4	31	46.4	93.5
Vaux.....	6	1.5	3.5	1	6	1–6	205	66.3	76.0
Hill.....	9	2	5	1	8	1–8	385	72.0	80.2
Meehan.....	9	0	3	1	4	1–4	175	58.2	80.0
Wilmot.....	10	1	2	0	3	1–8	138	59.3	84.7

In District 1 the J. Miller School has 68.2 per cent of retardation, against 41.8 for the district, the school having the next highest amount of retardation being the Boon's Dam, with 49.1 per cent (8 per cent colored). In District 3 the Pollock School has 60.6 per cent of retardation, against 44.5 per cent for the district, the school having the next highest amount of retardation being the Florence, with 56.0 per cent (nearly 100 per cent foreign). In District 4 the Catto School has 67.3 per cent of retardation, and the Ramsey 70.9 per cent, against 45.1 per cent for the district. The Keystone School, 44 per cent colored, has the next highest amount of retardation, 57.8 per cent. In District 6 the Vaux School has 66.3 per cent of retardation, against 37.2 per cent for the district. The Hancock School (13 per cent

colored), with 47.4 per cent retardation, has the next highest percentage. In District 9 the Hill School and the Meehan have 72.8 per cent and 58.2 per cent of retardation respectively, against 36 per cent for the district. The Gilbert School (6 per cent colored), with 51.6 per cent, stands next. The high percentage of retardation here, however, seems to be due to local causes, as the Harmer, which is next below, has only 45.0 per cent, and the percentages of retardation of the schools below this fall off normally. In District 10 the Wilmot School has 59.3 per cent of retardation, against 33.3 per cent for the district, the next school being the Martin, with 51.1 per cent. This school has a large foreign element and also draws a number of its pupils from three parochial schools in the neighborhood. The Marshall School follows the Martin, with 46.5 per cent, after which comes the Lawndale, with 40.2 per cent, which is more typical of the district.

In every case the colored schools are far above the others in the amount of retardation. Taking the schools with 20 per cent colored children or over, we can see an increase as a whole in retardation. With 8188 colored pupils showing so great an amount of retardation, it is obvious that the total retardation is affected. In comparing the grades this colored retardation is a considerable factor, as the colored pupil does not often get above the sixth grade before leaving school. One result of this is to swell the amount of retardation in the fourth and fifth grades.

If we look over the retardation of the several districts we see that District 7 has practically no negro element and that in Districts 8 and 10 the negro element is only 2.1 per cent and 1.4 per cent respectively. District 6, on the other hand, has a large percentage of colored pupils (7.1 per cent) and still has a comparatively low rate of retardation. Districts 3 and 4 have the largest percentages of retardation and also the largest proportion of negroes. It is not contended that the negro element is the principal cause of the greater retardation in these districts, but that it is one of the factors. This sociological element influences the whole system and adds to the amount of retardation. It is a question whether the course of study is suited to the negroes, as the educational results are so far behind those in the other schools, and it is very doubtful whether even a liberal interpretation of the course of study would meet the educational necessities of this group.

(To be concluded.)

REVIEWS AND CRITICISM.

Health and Medical Inspection of School Children. By Walter S. Cornell, M.D. Philadelphia: F. A. Davis Company, 1912. Pp. xiv+614.

Dr. Cornell has been for six years a medical inspector and is now Director of Medical Inspection in the Philadelphia Public Schools. In the course of this experience he has worked out many problems to a solution, and has become an authority upon methods. His book is, in the first place, a practical manual for the medical inspector, and in the second place a work of reference for the teacher who wishes to take an intelligent part in the movement for popular hygiene. Extensive as the volume is, "only general information is given on the treatment of diseases and defects," Dr. Cornell explains, for he "does not care to participate in home medication based on incorrect diagnosis."

The first one hundred and fifty pages of the volume discuss medical inspection, its object, administration, correction of defects, results, and its present status in the United States. In this section the various blank forms, many of which have been devised by Dr. Cornell, are particularly valuable. They include records, notices to parents and nurses, and reports of all kinds.

Speaking of the position of the medical inspector, Dr. Cornell says, "Harmonious relations between the medical inspectors and the other physicians of the community are essential. It is impossible, as long as medical inspectors engage in private practice, for them to avoid the reputation of building up a clientele through the lever of their school work. . . The solution appears to lie (a) in the use of teachers, nurses, and social visitors for personal interviews with parents. . . (b) The medical inspector should keep his personality as much as possible in the background by signing parents' notices without his address, and by living outside of his district when this is not an obvious inconvenience. (c) A better care by practising physicians of the children whom they regard as their patients."

In discussing the co-operation of teacher, child and parent, Dr. Cornell remarks, "The teacher can, first of all, exercise the art of preventive medicine. She can keep her room well ventilated, abolish the common slate-pencil box and the common drinking cup, see that her children have proper-sized desks, give the children nerve-resting periods of relaxation, and changes of work, and treat them so gently that nerve storms are unknown. . . I have gone into so many class rooms in the elementary schools whose foul, warm atmosphere almost made me sick, that it is proper to call attention to this neglect of the understanding and practice of ventilation by school teachers." A little further on he adds, "Let me not be misunderstood. The fault lies not with our teachers,

but with their training. They cannot even interpret the medical inspector's record on the child's health card. When our normal schools wake up, and spend a few dollars for actual specimens instead of depending entirely upon paper descriptions; when teachers are taught to look into a child's mouth instead of learning about intestinal villi and convoluted renal tubules, the teacher will know something about the subject and act with interest and confidence."

The sections on hygiene and school sanitation are highly interesting, and contain many ideas which a teacher may apply directly to enliven the routine of class work and increase the vigor of her pupils. Dr. Cornell discusses the lighting of school rooms, ventilation and open air classes, physical training, recreation, sources of contagion, and methods of cleaning, concluding with a brief but stirring chapter on personal hygiene.

The remaining two-thirds of the book is concerned with the defects and diseases prevalent among children, taking up in turn the eyes, nose and throat, ear, teeth, nervous system, mental deficiency, the skeleton, nutrition, the skin, speech, and infectious diseases. The chapters on the eyes, nose and throat, and ear, are among the best in the book, and should be studied carefully by every teacher of young children; while the chapter on mental deficiency presents the varieties of mental defect so clearly that any medical inspector who is not already a neurologist can use it as a guide in rough classification.

Parts of this section on mental deficiency have appeared as articles in THE PSYCHOLOGICAL CLINIC, as have parts of certain other chapters, notably those on nervous disorders of school children, penny lunches, and school nursing.

A. T.

NEWS AND COMMENT.

The Summer Class for Bright Children.

In the March number of THE PSYCHOLOGICAL CLINIC announcement was made of two special classes to be conducted by the Psychological Laboratory and Clinic of the University of Pennsylvania during the summer session of 1912. Miss Walsh and Mrs. Pfeiffer, who taught the class for backward children at the University last summer under Miss Farrell, will again have charge of a similar class. The bright children will be under the teaching of Miss Maud L. Parker, of New York, who will aim to take them over one term of the regular school curriculum in six weeks.

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PRELIMINARY REPORT ON THE TREATMENT OF STUTTERING, STAMMERING, AND LISPING IN A NEW YORK SCHOOL.

By Michael Levine, A.M.,

Teacher in Public School 64, New York City.[1]

The first question is: what is the difference between stuttering and stammering, terms which are used interchangeably by the layman? According to modern physiology they both denote a disease of the mechanism involved in the production of speech, disturbances in the organs governing respiration, phonation, and articulation. While many authorities differentiate stuttering from stammering, others claim that fundamentally they describe one and the same condition. Writers who have accepted the view that stuttering and stammering are one disease, have made subdivisions based on the kind of cramps experienced by the patient while speaking. For the purposes of this discussion, however, it will be convenient to separate the two terms and to allot to each its peculiar symptoms.

Stuttering may be used to denote faulty speech as a result of respiratory disturbances, the defects being in the muscles of respiration, or in the larynx, or in both. *Stammering,* on the other hand, may be used to denote a disability of the muscles of articulation. These defects do not include disorders of speech associated with brain lesions, or the conditions described under such terms as *Stammeln, Hörnstummheit,* or other speech abnormalities.

The possible physiological causes of stuttering are very complicated, but two at least may be distinguished. Stuttering is caused by highly intensified nervous impulses which pass not only to the nerves controlling laryngeal activity, but also to those governing other motor activities. In many instances these other activities at first offer relief, but finally become involuntary, so that the

[1] Public School No. 64 is under the supervision of Associate Superintendent Gustave Straubenmuller and District Superintendent John W. Davis, to both of whom the writer is indebted for sympathetic co-operation, and also to Principal William E. Grady, whose suggestions and kind assistance made the work possible.

patient is unable to speak without them. In many cases, however, these associated motor activities are involuntary from the beginning. This is self-explanatory when we remember that the laryngeal nerves are branches of the vagus. All the muscles except the thyro-cricoid, which innervated by the superior laryngeal, receive nerve filaments from the inferior laryngeal branch of the vagus, the fibres being derived from the accessory roots. This cranial nerve sends off branches which supply the heart and other internal organs. Moreover, the vagus has practically the same origin as the glosso-pharyngeal and the facial nerves. The glosso-pharyngeal supplies motor fibres to the muscles of the pharynx and the base of the tongue, and secretory fibres to the parotid gland. The facial motor branches supply the muscles of the face, scalp, and ear, while its secretory fibres supply the submaxillary and sublingual glands. It is not surprising, therefore, that in severe attacks of stuttering not only do the lips move, but also the head, the jaws, the eyes, the nostrils, the arms and the legs in a frantic endeavor to produce the desired sound. These are the external manifestations. There are concomitant internal manifestations such as palpitation of the heart, dull pain in the stomach, parched throat, and other depressing symptoms.

Stuttering may be due to some aberration of the superior laryngeal or recurrent fibres. The temporary paralysis of these fibres deprives the stutterer of the power to speak because this nerve controls the smaller muscles of the larynx which in turn control the size of the glottis. The sudden changes in the larynx destroy the rhythm of breathing which is of fundamental importance to normal speech.

As distinguished from stuttering, the term stammering may be used to denote defects of the speech organs employed in producing consonants. The patient repeats involuntarily the sound of a consonant several times before he can glide on to the next sound. As a rule the stammerer speaks very rapidly when he is not in difficulty. In all cases there seems to be a lack of proper respiratory control.

The views expressed by the leading German authorities (see bibliography, page 106) show that at present there is no consensus of opinion as to the causes of stammering and stuttering. The best criterion of their theories would be the results of methods based upon them. Without doubt many factors are involved in producing stuttering and stammering, and many causes are assigned, the most common of which are fear, imitation, injury to

organs of articulation, and heredity. An investigation of thirty-two cases showed the following causes. In the case of the four marked "unknown," the parents simply stated that their children had suddenly developed the habit.

TABLE I. CAUSES OF STUTTERING AND STAMMERING.

Imitation	7	
Results of disease	8	
Nervousness caused by fright	13	
Unknown	4	32

The defects made their appearance between the ages of five and eight years, and in but one case did a pupil begin to stammer after he had attained the age of eight.

Lisping is a relatively minor speech defect, usually due to absence of front teeth, an unusual protrusion of the lower jaw, to carelessness, and in many cases to a lack of knowledge concerning the position of the tongue and the shape of the mouth necessary to the production of various sounds.

Assuming the truth of these fundamental considerations, yet remembering that our inferences are based on the limited material supplied by a single city school, let us inquire:

(1) What is the percentage of stutterers, of stammerers, and of lispers in the school?

(2) What effect does school life have on the production of speech defects?

(3) What specific remedial measures may be adopted?

The figures given in Table II are very conservative, in that they represent only the pupils who are sent to the speech class because their speech is so poor as to handicap their progress. It is probable that a thorough examination of all the pupils in the school would largely increase these figures.

TABLE II.

School Enrolment	Per cent of defective speakers	Per cent of stammerers and stutterers	Per cent of lispers or "babytalkers"
2997	3.0	1.8	1.2

Investigations conducted abroad, in German and Belgium (see bibliography, page 106), show approximately similar results. As an index of general conditions the figures correspond to those given in table II, and while it may seem premature to generalize,

yet it seems as if a thorough investigation of the problem in our city schools would reveal an even higher percentage of speech defectives here than abroad.

In addition to ascertaining the number of speech defective in the schools, an interesting problem would be to find the distribution of such pupils in the grades, with a view to drawing conclusions as to the influence of school conditions in producing speech defects.

A careful study of the problem of distribution and school influence by Rouma in Belgium showed that the proportion of lispers diminishes from the first to the sixth school year, while the proportion of stutterers and stammerers increases in the same period. His figures also show a gradual increase in the number of stuttering and stammering boys from the first to the fourth grades, as in the following table:

TABLE III.

First year	.8	per	cent
Second year	1.3	"	"
Third year	2.0	"	"
Fourth year	2.4	"	"
Fifth year	1.8	"	"
Sixth year	2.3	"	"

Table IV shows the distribution of children with speech defects in Public School No. 64, New York City, (see page 97). In this table the number of stammerers, stutterers and lispers in each grade represents the number sent to the speech class by the grade teachers. Owing to duties imposed upon them by their parents, many of the children could not attend either the morning or afternoon sessions. As the table shows, only sixteen of the thirty-seven lispers attended the speech class.

A study of table IV will show that lisping is greatest in the early school years, and that it has a tendency to become less as we approach the third and fourth years. On the other hand the percentage of stammerers and stutterers increases rapidly. Few if any are found in the early grades, but the number increases until we have as many as 4 per cent in the eighth year of the elementary course. These results are substantially in accord with the findings of Rouma. Apparently the school is increasing rather than decreasing the number of speech defects. It is true that, as Rouma has remarked, indifference and neglect on the part of parents, are factors contributing to the acquisition of habits of faulty

TABLE IV.—DISTRIBUTION OF DEFECTIVE SPEAKERS IN PUBLIC SCHOOL NO. 64

Grade	Enrolment	Stutterers and Stammerers			Lispers and "Babytalkers"			Total Defective Speakers	
		Whole Number	Per cent	Number in Speech Class	Whole Number	Per cent	Number in Speech Class	Number	Per cent
Kgn	75	0	—	0	1	1.3	0	1	1.3
1A	204	0	—	0	4	1.9	0	4	1.9
1B	145	1	0.7	0	4	2.7	0	5	3.4
2A	174	2	1.1	0	2	1.1	0	4	1.1
2E–2B	188	3	1.5	2	2	1.0	2	5	2.6
3A	187	1	0.5	1	2	1.0	2	3	1.5
3E–3B	184	6	3.2	1	0	—	0	6	3.2
4A	190	2	1.0	1	1	0.5	1	3	1.5
4E–4B	252	6	2.3	2	4	1.5	3	10	3.9
5A	237	3	1.2	2	4	1.6	4	7	2.9
5E–5B	253	6	2.3	6	2	0.7	0	8	3.1
6A	243	9	3.7	6	2	0.8	0	11	4.5
6E–6B	189	6	3.1	4	1	0.5	0	7	3.7
7A	155	2	1.2	1	2	1.2	0	4	2.5
7B	127	0	—	0	3	2.3	3	3	2.3
8A	95	5	4.2	4	2	2.1	0	7	6.3
8B	99	3	3.0	2	1	1.0	1	4	4.0
Totals	2997	55	1.8	32	37	1.2	16	92	3.0

speech by children, nevertheless, modern pedagogical methods probably produce many stutterers and stammerers. Devices such as perception cards, rapid oral arithmetic, rapid interrogation, compulsory answering irrespective of the pupil's readiness and willingness, and those school activities in general which require intense mental effort combined with immediate oral response, frequently tend to transform a nervous tendency into a disease. There are, of course, still other factors within the control of the school. For example, a number of children who have been under instruction in the speech class have relapsed into their former manner of speech shortly after promotion into a new class. Investigation has proved that various influences such as nagging, over-pressure, sarcasm, and mimicry of classmates, all tend to disturb the pupil and hinder him from living up to the standards set for him in the speech class.

The pertinent question still remains, what specific remedial measures can be adopted to assist the child with defective speech.

The first problem is one of organization. There are various possible modes of grouping such pupils:

(1) Isolation and segregation of speech defectives in a special class, the session of which shall last from 9 a. m. to 3 p. m.

(2) Compulsory attendance of speech defectives in the room of a regular teacher, preferably a departmental teacher, who having been relieved of official class work, can give within the limits of the school session, instruction for an hour or more daily to pupils who report to his room.

(3) Attendance, compulsory or optional, of speech defectives before the regular session (8 to 8:30 a. m.) or after the regular session (3 to 3:30 p. m.) for instruction by a regular or a special teacher.

(4) Looking at the problem in terms of a school district, rather than one particular school, attendance compulsory or optional at a centrally located school, conforming to any of the foregoing schemes.

Without going into the relative merits of these various plans, it may be remarked that it is inadvisable to isolate the defectives as suggested in (1). We may well apply to such pupils the statement of Dr. James Kerr Love with reference to the deaf. Instead of stuttering, stammering or lisping being a reason for sending a child to a special class, it is a good reason for keeping him out of it. Grouping him with others like himself would make him more conscious of his condition and this consciousness would become the basis of timidity. Moreover, it is obvious that normal pupils can set a better standard of speech than can any group of speech defectives. In connection with (2) it may be noted that a special class takes the pupil away from his regular lessons and retardation may result, not only directly from speech defects, but indirectly from absence during periods of instruction in sequential subjects.

Conclusions like the above led to the organization in Public School No. 64 of a class which met for two short periods daily, one in the morning prior to the opening session (8 to 8: 30 a. m.), the other at the close of the session (3 to 3: 30 p. m.). The grade teachers were urged to co-operate by attending a session of the speech class to note the method of instructing the pupils, and by making the pupils conform to certain standards in the daily recitation. The speech defectives were told to consult with their regular class teachers and to indicate their willingness and readiness

to recite orally by raising the hand. When reciting, the pupils are supposed to stand erect, to take deep breaths, to talk very slowly, and to try to vary the pitch. The teachers were requested to encourage the pupils to live up to these requirements. To compel speech defectives to recite in response to questions sharply put when they are not ready with an answer, frequently throws them into such a nervous state that in their attempt to answer, they will relapse into their former habits and nullify the results of special instruction.

Three forms of exercises were employed in the morning and afternoon speech classes.

(1) An exercise to build up the weakened respiratory system. For this purpose, use was made of the "Two-minute drill" as given in the city schools. This drill, when properly done, becomes a "minute-and-a-half drill," and consists of deep breathing, arm-stretching, and forward bending at hips to touch tips of fingers to toes, knee-bending with thumbs locked behind back. Abdominal breathing was taught and a conscious use of this mode of breathing was encouraged.

(2) A second exercise for the purpose of recapitulating the steps taken by a young child in acquiring speech. This exercise was based on Wundt's Development of Speech in Children (*Entwicklung der Kindersprache*). Inarticulate sounds (*Schreilaute*) gradually lead to the development of articulate sounds, and these in turn lead to the word in the sentence.

(3) Ear training. This enables the pupil to hear his own voice and to make an effort to change the tone of his speaking voice from a low monotonous pitch to the modulated speech of a normal child. Inasmuch as speech defectives tend to crowd their speech and use a faster *tempo* than normal, a metronome was employed to give the pupil a standard by which to measure the gait of his speech.

In the first exercise, the effort is made not only to strengthen the weakened respiratory and circulatory system, but to impress upon the pupil the fact that proper breathing is a means of overcoming his difficulty. The child is placed on his back and told to inhale and to feel the movement of the belly wall during inhalation and exhalation. In a stutterer, during these respiratory movements, a marked quivering of the diaphragm may be felt. The pupil can not control his breath in exhalation, nor can he in any way check the quivering of the diaphragm. Moreover, the breath-

ing is usually very shallow. The pupil is made to realize these defects, and at once puts forth a conscious effort to take deeper breaths and to control the exhalation. Constant practice of abdominal breathing causes the spasmodic contractions of the diaphragm to disappear and enables the pupil to control his breathing. The following exercises for strengthening the diaphragm are used. The pupil is told to inhale deeply and then to exhale slowly with the tongue, teeth and lips in the position for pronouncing the consonants *f* or *v*. At the beginning of the work, the length of time the child can sustain a tone is usually very short, but he is encouraged to hold a definite tone until perfect control of the diaphragm and larynx is obtained. To a moderate degree, relaxation of the muscles of the larynx is obtained through suggestions as to the poise of the head, absence of collar pressure, front or back, the necessity of talking "up," etc. After telling the pupil that he should have a sense of ease in the throat, breathing exercises are begun. Inhalation is performed very slowly, and exhalation assumes the sound of *ah*. Inaudible at first, the sound becomes louder and louder in successive drills until finally it is normal.

The second exercise is then begun. Expiration takes the form of a vowel or a series of vowels, for the defective never falters on a vowel but always on a consonant. The vowels are sung and sustained at a definite pitch. In the early stages of the work, the duration of this sound varies from five to ten seconds, but after a few days' practice, it reaches thirty to fifty seconds. That is to say, during one exhalation, the vocal cords, the glottis and the diaphragm, can be so regulated as to allow the continuation of one sound for half a minute or longer. The exercise is repeated with each vowel in turn. Later the vowels are combined with single consonants, as *ba, be, bi, bo, bu,* and the series is gone through with one breath. Drills on the more difficult consonants follow, special attention being given to the peculiar difficulties of the individual children. To some *g* gives the most trouble, to others *b, p, k, v,* etc. Frequently, the initial consonant of the pupil's name is the most difficult. The most difficult consonant, whatever it may be, is combined with a vowel and a method is devised by which the pupil eventually succeeds in producing it easily. This sound is then combined with another consonant and both are prefixed to vowels, as *pra, pre, pri, pro, pru.*

The third exercise is intended to develop a keen sense of pitch and rhythm. The pupils find little difficulty in repeating the syllables mentioned, especially in a sing-song manner. The introduc-

tion of melody in speaking serves the very good purpose of developing a new habit; it produces a change of tone. To break the pupils of the habit of speaking in a low-pitched monotone, all the vowels and syllables were at first recited in a sing-song. This led to the fourth development, namely slower, rhythmic speech. The slower utterance was taught through the use of a metronome and through simple rhymes or jingles. Varied intonation was secured through imitation and by the use of charts containing sentences underscored with colored lines suggesting the proper variations of pitch. For example, in the following sentences the intonation is a rising or a falling one, according to the thought expressed in the sentence, and the pupil is taught to indicate the change in tone by raising or lowering the hand.

The flag was raised.
I walked down the steps.
I jump up and down.

Further sentences expressing everyday occurrences were put on charts and colored chalk used in marking the vowels, each vowel being marked with a different color.

Inasmuch as the vowels are easiest for the pupil to sound, this device seems to encourage him and enable him to master the consonants more easily. In cases where the first word in a sentence begins with a consonant, and difficulty is encountered in sounding it, the pupil is taught to introduce a vowel before the consonant. For example, in the sentence, "Prince George became King of England," if the initial consonant prevents the pupil from getting a start, he is instructed to read the sentence as though it were "*A* Prince George," etc. Having once got under way through the help of such a device, the child encounters no further difficulty provided the respiratory activities are normal. He then practices the initial sound in this connection until he can repeat the sentence with ease. Merely suggesting that the pupil can say a word often enables him to do so; he becomes confident, and finds himself trying to verify his growing belief in his ability.

Drills in reading the vowels in a sentence are also very helpful. A rhyme is written on a chart and all the vowels are marked in their characteristic colors. The pupil then reads the vowels slowly in a sing-song manner according to one of the five types of melodies shown in Fig. 1. The consonants are then slipped in and the pupils read the entire sentence in a musical tone. The selection

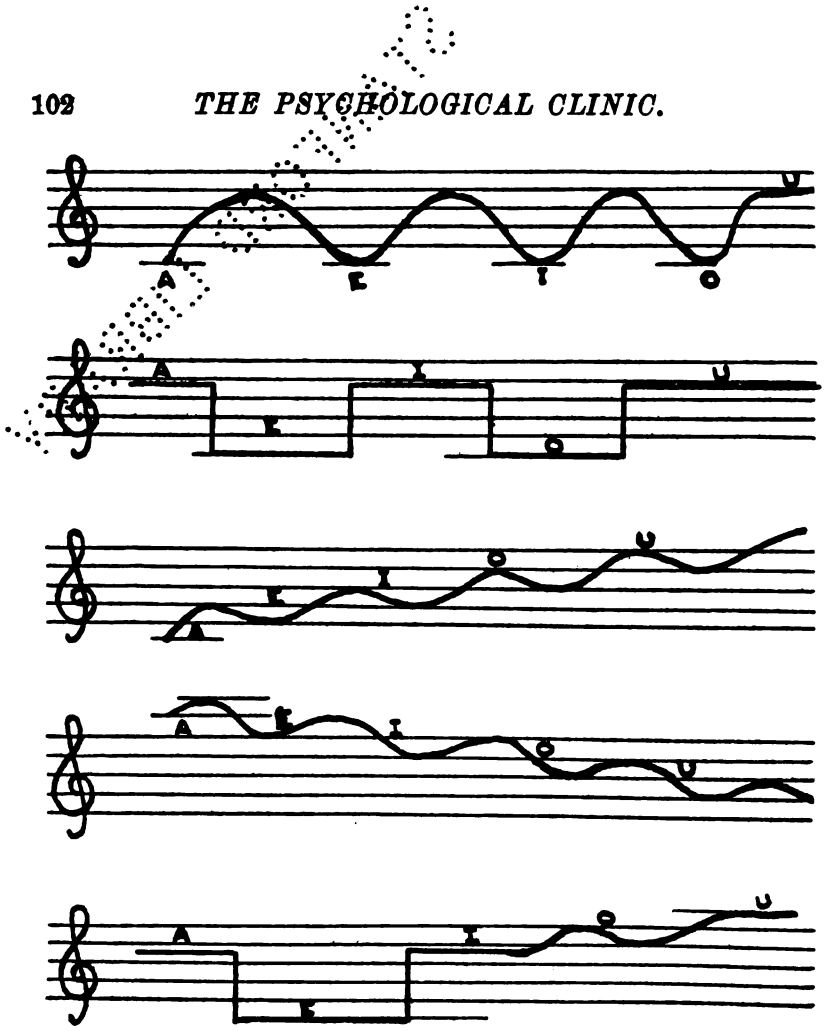


FIG. 1. THE FIVE TYPE MELODIES.

and presentation of reading material is of great importance, and should come as a final step in the treatment.

The pupils are taught to be self-critical of their speech. Inappropriate movements, a dull monotonous tone, lack of breath, careless pronunciation or enunciation,—all these faults arouse immediate criticism. Through experience the pupil learns (1) to inhale until the belly wall is well extended; (2) to speak slowly and in rhythm; (3) to use a melody; (4) to pay close attention to vowels; (5) to introduce a vowel when in straits.

The application of these exercises was fraught with difficulty. The oral rendition of any selection from the reader seemed to undo all that had been laboriously accomplished. The pupils still lacked power and confidence, and the sight of a reader or any

other book made them revert to their old habits. This may have been due to the association of a reader with the unsympathetic audience in the classroom. For a long time it was hard to develop a type of recitation other than that of question and answer, which would serve for the application of principles already taught; but the imitative instincts of the children suggested a plan which was followed with excellent results. They originated games which were nothing less than a dramatization of familiar occupations. One game that proved very effective was called "grocery." The pupils first told what could be bought in a grocery store, and then chose a grocer, several clerks, errand boys, and so on. Although it usually required an entire period for the mere organization of the game, it was worth while because it aroused a deep interest in the work. The pupils talked freely and seemed to forget their difficulties. The next two or three periods were spent in buying at the imaginary shop, the grocer, his clerks, and the purchasers taking their respective positions, and conducting the transactions in a realistic manner. This type of play became very popular with the children. The transition from this to the dramatization of reading material would not be too difficult.

The course of work briefly outlined above tended to make the stutterers and stammerers optimistic. Each felt that through his own efforts he had ceased to be a legitimate object for the gibes of his classmates. Even if he had not been entirely cured, at least he felt more confident of his ability to improve, and the attempt had been made to imbue him with the idea that if he faithfully followed up the work he was bound to succeed.

Lispers include that group of defective speakers who are unable to give certain letters their proper sounds. This inability may be due to the persistence of a habit formed in childhood of dropping the final syllable or of substituting sounds for those required in a word. The latter form of speech is often called "baby-talk" or more properly "infantile stammer". It may be due to malformation or late development of the teeth, and in the case of many foreign pupils, to a lack of knowledge as to the position of various parts of the articulatory apparatus for the production of certain sounds. Figure 2 shows the position of the tongue, teeth and lips to form such difficult sounds as *r, th, l, s, v* and *wh*. Investigation disclosed the fact that the most difficult sounds were the six just mentioned, and *w, z, d* and *t*. The *s* and *z* are especially difficult for children who lack the incisor or canine teeth, and they frequently substitute *th* for *s* or *z*. The *l, r, t, d, wh* and

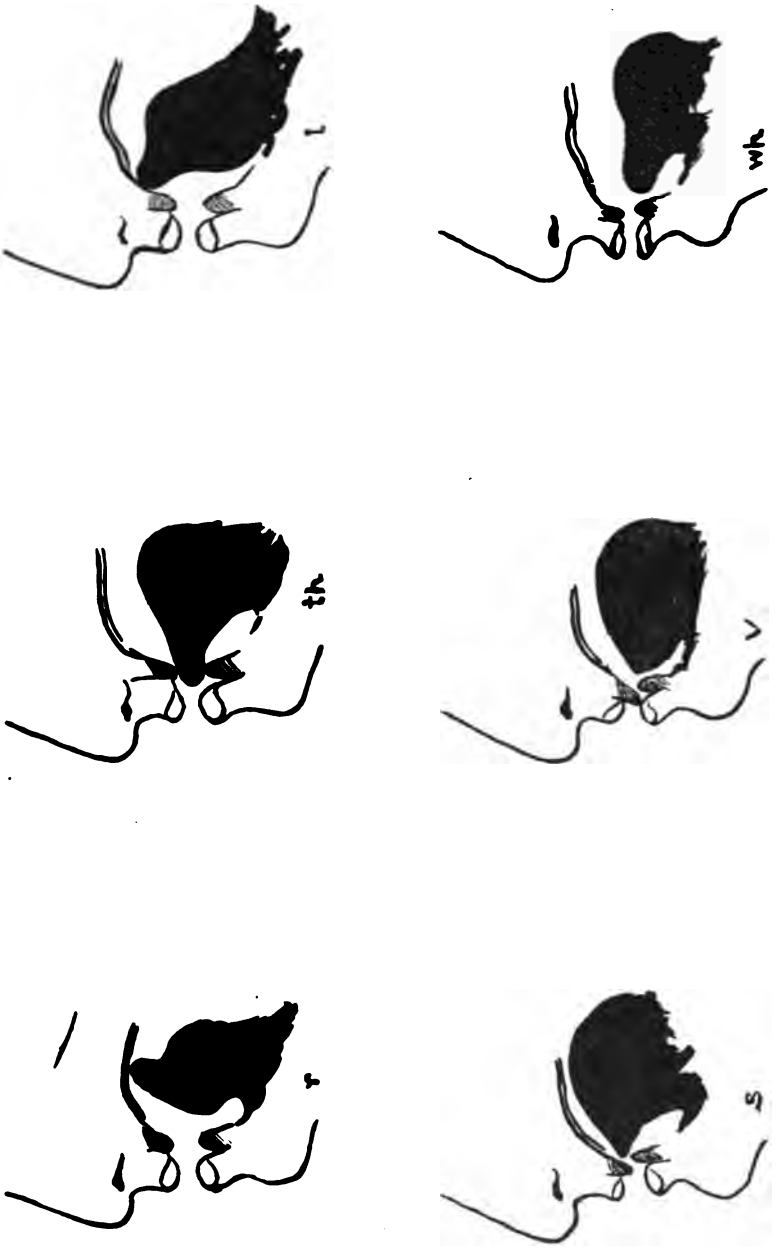


FIG. 2 POSITIONS OF THE TONGUE, TEETH AND LIPS TO FORM THE SIX MOST DIFFICULT SOUNDS.

w are usually mispronounced because of inability to place the tongue, teeth and lips in the proper position.

In correcting such defects the work is individual. Each pupil is studied thoroughly and his difficulties understood. In cases where nothing could be done because of the condition of the teeth, the children were advised to consult a dentist and then return to the class. The pupil who lisps the *l*, is brought before a mirror and shown how to place his tongue in order to sound the letter. He then repeats numerous words containing *l*, and practice in reading from a book follows. To make the sound of *s*, the pupil is told to close his teeth and to touch them lightly with his tongue. After he masters the position he is told to blow his breath between his teeth. The letter *r* is sinned against chiefly by our foreigners and "baby-talkers". It is especially difficult for Russian Jewish children. The tongue plays an important part in the production of the *r* sound, being placed opposite the middle of the hard palate and vibrated while its outer edges rub against the hard palate. This sound, like the *l*, is taught with the aid of a mirror, and also by imitation of another pupil who practices at the same time. *Wh* is not a difficult sound, except for the foreigner. The pupil is told to protrude his lips in the form of a funnel and to blow out his breath as if trying to cool a spoonful of hot liquid. *V*, which is sometimes interchanged with *w*, is made by placing the upper teeth on the lower lip and blowing the breath between the lip and the teeth. *Th*, a sound incorrectly given by many, is made by placing the tip of the tongue between the upper and lower teeth and quickly withdrawing the tongue while allowing the breath to escape between the teeth. The sound may also be made by opening the teeth and forming a slip between the upper teeth and the tongue, but the former method was used because it proved to be easier. *T* is made by placing the tongue on the upper teeth, *d* by placing it on the hard palate near the teeth. The mouth, of course, is open and the breath is forced out while the tongue is rapidly moved downward.

Only two pupils found trouble in forming the *ch* and *sh* sounds, which as they gave them, were thick and resembled the escape of steam. On close examination it was found that the mouth was drawn to one side and the sound emitted through an aperture made by the lips and teeth. The defect was overcome by making the pupil control the motion of his lips and close the teeth as much as possible when producing the sounds.

Further study of speech defectives is urgently needed. Physiological investigation should be made of pupils who are not cured in a reasonable time, because of conditions obviously other than weak mentality. Pedagogical investigation should discover a method for the successful treatment of these peculiar cases. Statistics should be collected for the purpose of determining the character of the speech of pupils in city schools, so that the investigator of speech defects may give his attention to those groups which most need his assistance.

BIBLIOGRAPHY.

1. BELL. Principles of Phonetics, with directions for the cure of stammering.
2. The Faults of Speech.
3. COEN. Neueste Erfahrungen über Sprachstörungen; 1901.
4. Uber die pädagogische Behandlungen stotternder Kinder in den Schulen; 1889.
5. FACH, M. Die Behandlung stotternder Schüler; 1894.
6. GRÜNBAUM. Erklarung des Stotterns.
7. GUTZMAN, H. Das Stottern, I, II; 1899.
8. Uber die Verhütung und Heilung der wichtigsten Sprachstörungen; 1898.
9. Die Gesundheitspflege der Sprache.
10. HINCKLEY, A. C. A Speech Defect Case Treated at Columbia University. THE PSYCHOLOGICAL CLINIC, November 15, 1911.
11. HOWELL. Textbook of Physiology.
12. KÖNIGS. Die Behandlung stotternder Kinder; 1897.
13. LEWIS. Practical Treatment of Stammering and Stuttering; 1902.
14. LIEBMANN. Stotternde Kinder; 1903.
15. Vorlesungen über Sprachstörungen stotternder Kinder; 1898.
16. MEHNERT. Uber Sprachstörungen; 1904.
17. OTT. Practical Physiology.
18. ROGGE. Was hat die Schule zu tun um die Sprechfehler zu bekämpfen? 1895.
19. ROUMA. Enquêt Scolaire sur les Troubles de la Parole chez Ecoliers Belges; 1906.
20. SCRIPTURE. Treatment of Stuttering and Stammering; 1907.
21. Treatment of Negligent Speech by the General Practitioner; 1908.
21. STEWART. Manual of Physiology.
22. STEGEMANN. Heilung des Stotterns; 1903.
23. STOTZNER. Die Behandlung stammelnder und stotternder Schülkinder; 1891.
24. STRÜMPELL. Pädagogische Pathologie; 1899.
25. WUNDT. Physiologische Psychologie.

RETARDATION IN THE ELEMENTARY SCHOOLS OF PHILADELPHIA.

By Byron A. Phillips, Ph.D.,
Philadelphia.

(Concluded.)

The Foreign Element.

The foreign element raises the retardation above the average for the city, but not to as great an extent as the negro element. In studying this phase of the problem, such detailed statistics as obtained for the colored pupils were not available. We have secured, however, a list of the schools in Districts 1, 2, 3, 5, 6 and 10 with over 25 per cent of foreign pupils. Districts 8 and 9 have no schools with over 25 per cent foreign. By foreign is here meant those whose home conditions are characterized by foreign customs and speech.

Note must be taken not only of the rate of retardation of the school, but of the number of pupils and the grades in the schools, as the retardation in schools with grades 1 to 4 only, no matter what the conditions are, will be less than in fully graded schools. This is true to a less extent of schools which contain grades 1 to 4 only. The table on page 108 shows the retardation of schools with over 25 per cent foreign pupils for six of the districts.

From this table we see that the schools with 25 per cent or more of foreign pupils range in retardation from 40 per cent upward. In some schools the percentage of foreign pupils rises to 100 per cent, but in no school does the retardation equal that of the colored children. In schools with only 25 per cent foreign, other causes may reduce retardation.

It is curious to note the relatively small percentage of retardation in some of the schools of District 6 with 80 per cent and 90 per cent foreign, besides a considerable colored element:

Mifflin	School,	90	per	cent	foreign,	with	32.3	per cent retarded
Paxson	"	80	"	"	"		36.6	" "
Warner	"	80	"	"	"		37.6	" "
Penn	"	80	"	"	"		36.6	" "
Webster	"	40	"	"	"		32.3	" "

These schools contain grades 1 to 4 only, but may be compared with schools of the same grades in Districts 2 and 3, where the retardation is 40 to 50 per cent.

TABLE VIII. RETARDATION IN SCHOOLS WITH OVER 25 PER CENT FOREIGN PUPILS

Schools	Divisions				Number	Retardation	Attendance
	G	P	K	T			
District I.							
Point Breeze	1	4	1	6	250	40.3	92.0
Boon's Dam	3	8	0	11	556	49.1	88.6
District II.							
Read	2	18	0	20	931	44.2	91.2
Tasker	0	15	0	15	735	46.4	89.5
Close	10	14	0	24	1256	46.1	88.8
Baugh	11	7	0	18	841	40.9	93.0
Vare	14	9	1	24	1133	41.1	90.2
Calhoun	0	12	0	12	607	44.5	89.0
Foy	0	21	0	21	967	43.1	91.1
Sharswood	17	7	0	24	1120	47.5	88.1
Taggart	0	19	2	21	976	45.1	83.2
District III.							
Hay	0	19	0	19	984	51.3	91.9
Nebinger	10	12	0	22	994	54.8	92.9
Stockdale	0	7	1	8	352	55.2	84.6
Washington	0	22	4	26	1138	53.9	83.5
Wharton	13	25	0	38	1759	38.2	92.1
Burk	0	18	1	19	890	45.9	93.0
Fletcher	0	21	2	23	1095	44.7	89.4
Florence	0	17	3	20	964	56.0	88.5
Mt. Vernon	14	12	0	26	1273	48.6	92.9
Meredith	0	17	1	18	870	39.5	94.8
Ralston*	0	8	1	9	457	33.5	92.6
Randall	0	16	2	18	749	46.4	87.5
District V.							
Binney	14	10	1	25	1123	42.5	91.8
Forten	3	10	4	17	618	48.4	90.4
Wharton	0	28	3	31	1426	45.5	88.5
District VI.							
Mifflin	0	17	2	19	821	32.3	90.2
Paxson	0	21	4	25	1008	36.6	82.4
Warner	0	13	2	15	639	37.6	86.0
Wyoming	18	5	1	24	927	44.1	89.9
Hancock	10	17	2	29	1256	47.4	89.4
Lynd	8	13	2	23	984	44.3	88.8
Penn	0	12	3	15	619	36.6	87.3
Webster	0	10	1	11	475	32.3	87.1
District X.							
Longfellow	6	13	2	21	946	40.2	89.0
McClellan	0	18	2	20	846	32.8	89.5
Bridesburg	5	10	1	16	711	37.0	88.7
Martin	8	7	0	15	693	51.1	92.7

*Grades 1-2 only.

Summary:

(1) The home conditions of the sociological units are an important factor in retardation.

(2) The negro element is out of accord with the educational system, and is an important factor in retardation.

(3) The same thing is true of the foreign element, to a less extent.

(4) Supervision may reduce retardation by a more liberal interpretation of the course of study.

Retardation in the Schools.

When comparing the retardation of different districts, it is desirable to know whether the retardation in each district is uniform throughout or whether the average is raised or lowered by certain schools. In the table on page 110 the schools in each district are arranged in groups according to their percentage of retardation, *e. g.,* there are four schools in District 1 with between 35 and 40 per cent of retardation, four schools with between 40 and 45 per cent, and so on.

The first thing to note is the high percentage of retardation in the colored schools, the next is the comparatively low retardation of schools with grades 1 and 2, or 1 to 4, only. The retardation in Districts 2, 5, 7 and 8 is more uniform than in the other districts.

The schools in Districts 2, 3, 4 and 5 are much larger than those of Districts 9 and 10. In the former districts there are fewer fully graded schools, while in the latter group, especially District 10, the fully graded schools predominate. This is due, of course, to rural conditions. In these schools there seem to be conditions favorable to greater understanding of the individual needs of the child, owing probably to the fact that many of the schools are small and have few pupils in each grade. In the larger schools of the congested districts the lockstep of the curriculum must be preserved, even where individual instruction is most needed. This has the effect of augmenting the amount of retardation. Deficiency in certain branches, notably arithmetic and spelling, often is the cause of a pupil's failure to advance. Individual attention is not to be had, and the pupil's entire education must be neglected while he is making futile efforts to reach a fixed standard in these branches. Promotions should be made according to individual need, not by a fixed rule for the average child. A course of study must be liberally interpreted in the

TABLE IX. SCHOOLS IN EACH DISTRICT CLASSIFIED ACCORDING TO PERCENTAGE OF RETARDATION.

District.	15–19%	20–24%	25–29%	30–34%	35–39%	40–44%	45–49%	50–54%	55–59%	60–64%	65–69%	70–74%	Totals.
1		1–4 1	1–4 1		4	4	8				c 1		19
2			1–2 1		2	7	8	1					19
3			1–2 1		4	1	5	4	2	c 1			18
4			1–4 1	2	5	4	6	2	2		c 1	c 2	25
5	S P 1			1	1	6	6	3	1				19
6		1–2 1–4 2	1–6 1	3	8	3	1				c 1		19
7			1–4 4	4	10	2							20
8			3	4	6	6	4						23
9	1–4 2	1	6	5	12	4	1	1	c 1			c 1	34
10		4	6	12	6	2	1	1	c 1				33
Totals	3	8	24	31	58	39	40	12	7	c 1	c 3	c 3	229

1–2 = grades 1–2 only. 1–4 = grades 1–4 only.
1–6 = grades 1–6 only. c = colored schools.
S P = Practice school of School of Pedagogy.

classroom. In every class are found the bright pupils, the average pupils, and the slow pupils. If the amount of detail required were varied to suit the ability of these three kinds of children, much retardation would be avoided. This is only another example of what may be accomplished by supervision.

Acceleration.

In previous studies of retardation little attention has been given either to pupils of normal age for their grades, or to accelerated pupils. The following table summarizes the retardation, normal progress, and acceleration for the ten districts.

TABLE X. PERCENTAGES OF RETARDED, NORMAL, AND ACCELERATED PUPILS BY DISTRICTS ARRANGED IN ORDER OF AMOUNT OF RETARDATION.

District	BOYS			District	GIRLS			District	BOTH		
	Retarded	Normal	Accelerated		Retarded	Normal	Accelerated		Retarded	Normal	Accelerated
3	48.1	29.1	22.8	3	45.8	27.9	26.3	3	47.0	28.5	24.5
5	46.1	28.4	25.5	4	44.4	29.4	26.2	4	45.1	28.9	26.0
4	46.0	28.3	25.7	5	43.3	30.1	26.6	5	44.7	29.2	26.1
2	45.9	30.6	23.5	2	43.2	31.6	25.2	2	44.5	31.1	24.4
1	41.9	31.1	27.0	1	41.7	30.5	27.8	1	41.8	30.8	27.4
8	40.1	29.8	30.1	6	37.3	31.7	31.0	8	38.5	30.2	31.3
9	37.5	30.3	32.2	8	36.9	30.7	32.4	6	37.2	32.3	30.5
6	37.2	32.9	29.9	9	34.5	31.7	33.8	9	36.0	31.0	33.0
7	36.8	31.6	31.6	7	34.2	30.7	35.1	7	35.5	31.2	33.3
10	35.9	31.1	33.0	10	30.6	31.5	37.9	10	33.3	31.3	35.4
Totals	41.7	30.2	28.1		39.2	30.6	30.2		40.3	30.5	29.2

The percentage of pupils making normal progress ranges only between 28.5 per cent in District 3, and 32.3 per cent in District 6, an average of 30.5 per cent. This is practically the same for boys as for girls, the former being 30.2 per cent, the latter 30.6 per cent. Acceleration has a wider range, from 24.5 per cent in District 3 to 35.4 per cent in District 10. The girls are more accelerated than the boys, and are less retarded, but the percentage of girls making normal progress is about the same. Studying the separate schools in each district, it is found that the normal-progress pupils range only between 28 and 33 per cent. This holds good for the schools in Districts 3 and 4 where retardation is greatest, as well as for Districts 7 and 10 where it is least. The acceleration in the schools of the different districts varies considerably, and we may say that the acceleration varies approximately inversely as the retardation, while normal progress remains approximately a constant. The following table summarizes the retardation, normal progress and acceleration for the city.

TABLE XI.

	Retardation	Normal	Acceleration
Boys	41.7	30.2	28.1
Girls	39.2	30.6	30.2
Both	40.3	30.5	29.2

A study of the districts by grades shows that the normal remains approximately at 31 per cent for grades 8, 6, 3, 2 and 1, but falls off in grades 5 and 4, where the retardation is greatest, to 26.2 per cent and 25.9 per cent respectively. It rises in grade 7 to 36.2 per cent. The acceleration bears a more direct relation to the retardation, the grade with a high retardation rate having a low acceleration rate and vice versa. The lowest acceleration is in grades 5 and 4, which have 19.1 per cent and 20.4 per cent respectively. The highest acceleration, 49.1 per cent, is in the first grade, due, of course, to early entrance. The eighth grade has the next highest percentage, 35.1 per cent. The following table gives the summary by grades for the city.

TABLE XII. SUMMARY OF RETARDATION, NORMAL PROGRESS, AND ACCELERATION FOR THE CITY.

GRADES	BOYS			GIRLS			BOTH		
	Retarded	Normal	Accelerated	Retarded	Normal	Accelerated	Retarded	Normal	Accelerated
8	31.2	33.0	35.8	31.3	34.2	34.5	31.3	33.6	35.1
7	35.5	36.1	28.4	35.9	36.2	27.9	35.7	36.2	28.1
6	48.1	30.1	21.8	47.1	30.5	22.4	47.6	30.3	22.1
5	55.3	25.5	19.2	54.1	26.8	19.1	54.7	26.2	19.1
4	56.2	25.1	18.7	51.2	26.7	22.1	53.7	25.9	20.4
3	50.5	29.5	20.0	45.5	30.8	23.7	48.0	30.1	21.9
2	39.1	33.0	27.9	34.6	32.7	32.7	36.9	32.8	30.3
1	20.1	31.8	48.1	18.5	31.3	50.2	19.3	31.6	49.1
Totals	41.7	30.2	28.1	39.2	30.6	30.2	40.3	30.5	29.2

A further analysis of retardation and acceleration shows that the retardation extends through four years while the acceleration extends through only two years.

TABLE XIII. RETARDATION AND ACCELERATION BY YEARS FOR THE TEN DISTRICTS.

Districts	BOYS							GIRLS							BOTH						
	NORMAL	RETARDED				ACCELERATED		NORMAL	RETARDED				ACCELERATED		NORMAL	RETARDED				ACCELERATED	
		1 year	2 years	3 years	4+years	1 year	2 years	3+years		1 year	2 years	3 years	4+years	1 year	2 years	3+years		1 year	2 years	3 years	4+years	1 year	2 years	3+years
1	31.1	21.7	12.1	5.3	2.6	24.7	2.3	0	30.5	22.2	12.0	5.1	2.4	25.6	2.1	0	30.8	21.9	12.0	5.2	2.5	25.1	2.2	0
2	30.6	22.8	13.5	6.5	3.0	21.3	2.4	0	31.6	23.6	11.9	5.3	2.6	23.3	2.4	0	31.1	23.0	12.7	5.9	2.8	22.0	2.4	0
3	29.1	21.1	14.8	7.6	4.7	20.7	2.6	0	27.9	21.2	13.0	7.0	4.4	24.2	2.1	0	28.5	21.0	13.9	7.3	4.6	23.4	2.1	0
4	28.3	22.5	13.2	6.6	3.6	23.4	2.3	0	29.4	21.9	13.1	6.0	3.0	24.4	1.9	0	28.9	22.2	13.1	6.3	3.3	23.8	2.1	0
5	28.4	21.6	13.7	6.8	3.9	23.2	2.2	0	30.1	21.4	12.6	6.5	2.5	24.0	2.8	0	29.2	21.6	13.2	6.6	3.2	23.5	2.4	0
6	32.9	19.1	10.2	4.3	2.0	28.7	2.6	0	31.7	20.2	10.2	4.5	2.2	28.6	2.4	0	32.3	20.0	10.4	4.5	2.1	28.0	2.5	0
7	31.6	18.8	10.9	4.8	1.9	28.6	3.0	0	30.7	19.2	9.7	3.8	1.3	31.0	4.0	0	31.2	18.9	10.3	4.3	1.6	29.8	3.5	0
8	29.8	21.8	11.7	4.6	1.9	27.5	2.5	0	30.7	20.9	9.9	4.5	1.3	29.7	2.6	0	30.2	21.4	10.8	4.5	1.6	28.6	2.5	0
9	30.3	20.5	10.5	4.6	1.8	28.6	3.6	0	31.7	20.6	9.3	3.4	1.0	30.7	3.0	0	31.0	20.6	9.9	4.0	1.4	29.7	3.3	0
10	31.1	20.1	10.8	4.0	1.3	30.1	2.8	0	31.5	18.1	8.6	2.7	1.0	34.4	3.3	0	31.3	19.1	9.5	3.4	1.2	32.2	3.0	0
Totals	30.2	21.0	12.1	5.5	2.6	25.7	2.6	0	30.6	21.0	11.0	4.8	2.2	27.5	2.6	0	30.5	21.0	11.6	5.1	2.4	26.6	2.6	0

In all districts together there are approximately 20 per cent retarded one year, 10 per cent retarded two years, 5 per cent retarded three years, and 3 per cent in Districts 1 to 6 and 1.5 per cent in Districts 7 to 10 retarded four years. The difference in acceleration is very marked. The acceleration for one year ranges from 22.0 per cent in District 2 to 32.2 per cent in District 10, but for two years it ranges only from 2.1 per cent in Districts 3 and 4 to 3.5 per cent in District 7.

Retardation for one year is the same for both boys and girls, 21.0 per cent, but retardation for two, three and four years is higher for boys than for girls. The following table gives a summary for the city:

TABLE XIV.

	Retarded				Normal	Accelerated	
	1 yr.	2 yrs.	3 yrs.	4 yrs.		1 yr.	2 yrs.
Boys	21.0	12.1	5.5	2.6	30.2	25.7	2.6
Girls	21.0	11.0	4.8	2.2	30.6	27.5	2.6
Both	21.0	11.6	5.1	2.4	30.5	26.6	2.6

The most interesting fact in this study is brought out by a comparison of the normal and accelerated pupils for the years 1908, 1909 and 1910. These tables have been compiled in the same manner as those for the retardation for the same years for boys, girls and both, for the ten districts.

TABLE XV. NORMAL PROGRESS BY DISTRICTS FOR 1908, 1909 AND 1910.

DISTRICT	1908			1909			1910		
	BOYS	GIRLS	BOTH	BOYS	GIRLS	BOTH	BOYS	GIRLS	BOTH
1	29.5	30.6	30.1	31.1	30.5	30.8	31.4	30.8	31.1
2	29.1	30.4	29.8	30.6	31.6	31.1	30.9	31.3	31.2
3	26.6	28.0	27.3	29.1	27.9	28.5	27.6	28.2	27.9
4	27.1	29.6	28.3	28.3	29.4	28.9	29.7	30.9	30.3
5	.....	.....	.....	28.4	30.1	29.2	29.5	29.2	29.4
6	26.8	30.5	28.7	32.9	31.7	32.3	30.6	31.0	30.8
7	29.5	30.8	30.1	31.6	30.7	31.2	30.2	29.4	29.8
8	29.2	31.0	30.1	29.8	30.7	30.2	29.7	30.8	30.3
9	30.5	31.0	30.7	30.3	31.7	31.0	30.1	31.8	30.9
10	30.0	31.1	30.5	31.1	31.5	31.3	31.2	31.3	31.2
Totals	28.8	30.3	29.6	30.2	30.6	30.5	30.1	30.5	30.3

TABLE XVI. ACCELERATION BY DISTRICTS FOR 1908, 1909 AND 1910.

DISTRICT	1908			1909			1910		
	BOYS	GIRLS	BOTH	BOYS	GIRLS	BOTH	BOYS	GIRLS	BOTH
1	23.9	26.3	25.1	27.0	27.8	27.4	27.3	28.6	28.0
2	23.6	24.1	23.9	23.5	25.2	24.4	24.3	25.8	24.9
3	22.7	25.8	24.2	22.8	26.3	24.5	23.9	25.9	24.9
4	24.0	23.8	23.9	25.7	26.2	26.0	27.2	28.6	27.8
5	.....	.....	.....	25.5	26.6	26.1	27.9	28.8	28.3
6	29.5	29.8	29.7	29.9	31.0	30.5	33.6	33.3	33.5
7	30.0	33.5	31.7	31.6	35.1	33.3	35.1	37.7	36.4
8	27.8	31.8	29.8	30.1	32.4	31.3	32.2	34.5	33.4
9	31.2	33.0	32.1	32.2	33.8	33.0	33.7	35.4	34.5
10	32.0	37.2	34.5	33.0	37.9	35.4	32.6	38.0	35.3
Totals	27.2	29.5	28.4	28.1	30.2	29.2	29.7	31.5	30.6

As the retardation for the years 1908, 1909 and 1910 has decreased from 42.4 per cent to 40.3 per cent and then to 38.8 per cent, we should expect to find an increase in the amount of normal progress, but such is not the case. It is true there is a slight increase for 1909, but 1910 shows a very slight falling off. The acceleration, on the other hand, shows a corresponding regular increase for boys as well as girls, averaging 28.4 per cent for 1908, 29.2 per cent for 1909, and 30.6 per cent for 1910. From this it would seem that retardation is being increased as a result of supervision, which is pushing up pupils all along the line. This has been the true state of affairs, and furthermore, provision has been made in the system for the more rapid advancement of brighter pupils by means of the so-called "incidental promotion". The tendency thus shown to decrease the inflexibility of the curriculum is an undoubted sign of progress. The relation of retarded, normal, and accelerated pupils for the years 1908, 1909 and 1910, may be graphically represented in the table on page 116.

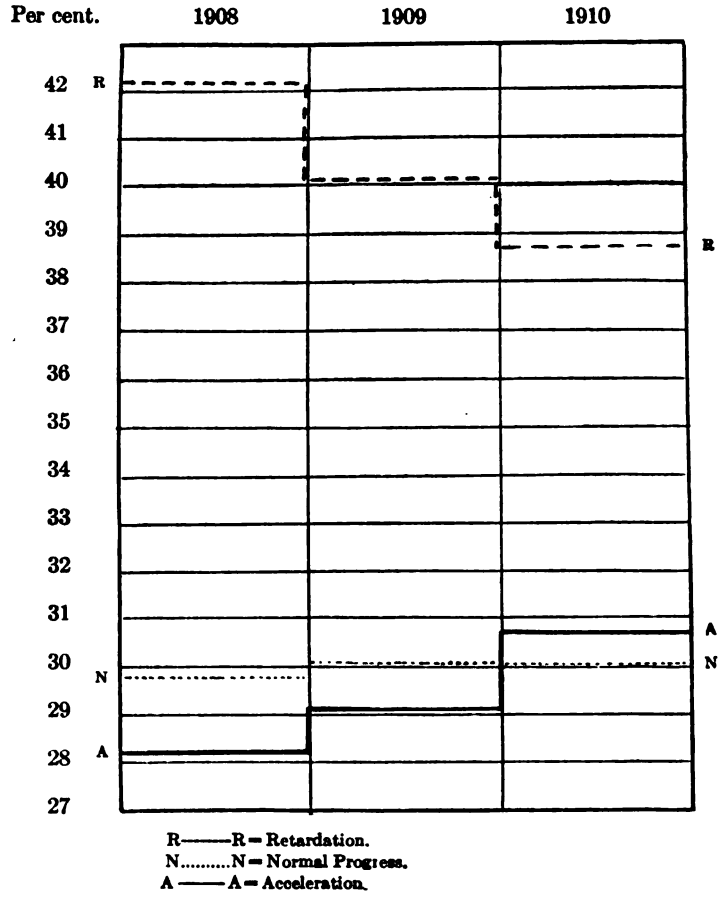
Summary:

(1) There is a considerable percentage of pupils accelerated, as well as of those retarded; 28.1 per cent of the boys are accelerated to 41.7 per cent retarded; 30.2 per cent girls accelerated to 39.2 per cent retarded; while 29.2 per cent of all pupils are accelerated to 40.3 retarded.

(2) The percentage of pupils making normal progress appears to remain a constant for boys and girls at about 30 per cent.

(3) While retardation has decreased during the past three years, the amount of normal progress has remained approximately the same, and acceleration has increased. This is to be accounted for by the effect of supervision in encouraging promotions all along the line.

TABLE XVII. GRAPHIC REPRESENTATION OF RETARDATION, NORMAL PROGRESS AND ACCELERATION.



Relation of Retardation to Number of Pupils per Teacher.

The overcrowded condition of some Philadelphia schools suggests that this condition may have an important bearing upon the relative amount of retardation in the overcrowded districts. For a study of this aspect of the problem there should be available the number of pupils in each class in each school, with the promo-

tion record of each class. This information not being accessible, the following study has been based upon the number of pupils in the primary grades (one to four) of each school and the number of primary teachers in the same school, and upon the number of pupils in the grammar grades (five to eight) with the corresponding number of grammar teachers in each school. There is an advantage in this division, as it is in the primary grades that overcrowding chiefly occurs and elimination is at the minimum.

A study of the separate schools of the districts fails to reveal any constant relation between the number of pupils per teacher and the percentage of retardation. If the results of the investigation of the separate schools are summarized by districts, it is seen that Districts 1 and 2 show five pupils per teacher more in the primary than in the grammar grades, with 5 per cent greater retardation in the latter than in the former. District 3 shows 41.8 pupils per teacher in the grammar grades to 47.8 in the primary, with 49.1 per cent of retardation in the former to 46.4 per cent in the latter. District 4 shows 41.0 pupils per teacher in the grammar, to 44.4 in the primary, with 52.4 per cent of retardation in the former to 41.2 per cent in the latter. District 5 has 40.9 pupils per teacher in the grammar to 44.5 in the primary, with 52.1 per cent of retardation in the former to 41.8 per cent in the latter. The greatest divergence between grammar and primary retardation, with the least difference in number of pupils per teacher in grammar and primary grades is in District 6, with 40.2 pupils per teacher in the grammar and 43.4 in the primary, with a grammar retardation of 45.4 per cent as against 32.6 per cent in the primary. District 7 shows 43.6 pupils per teacher in the grammar, 44.5 in the primary, with 40.2 per cent of retardation in the former and 33.2 per cent in the latter. In District 8 there are 42.4 pupils per teacher in the grammar, to 45.5 in the primary, with a retardation of 44.3 per cent in the former and 36.5 per cent in the latter. District 9 has 42.4 pupils per teacher in the grammar and 46.7 in the primary, with a retardation of 43.1 per cent in the former to 33.9 per cent in the latter. District 10 has 42.4 pupils per teacher in the grammar to 43.8 in the primary, with a retardation of 37.1 per cent in the former to 32.2 per cent in the primary.

Here again there seems to be no relation between district retardation and the number of pupils per teacher in the district. It appears that the primary grades may have more pupils per teacher than the grammar grades, and still do equally if not more

efficient work as measured by the criterion of retardation. This may be due to the higher requirements in the grammar grades. The controlling factor, as shown by the study of individual schools, seems to be the teacher. A good teacher with a large class will get better results than a poor teacher with a small one.

Elimination.

If all children remained in school until they had completed the course as prescribed for the elementary grades, the comparative amount of retardation between cities and the districts of the same city would roughly measure the efficiency of the system. At the age of fourteen years, working certificates may be obtained, and elimination begins. A district with a low percentage of retardation may have a high rate of elimination, the rate of retardation appearing low because of the fact that many pupils drop out, who, if they remained, would raise the retardation rate. The reverse may also be true, namely, a district with a high rate of retardation may have a comparatively low elimination rate. In calculating elimination the method employed by Ayres has been used.

In the following table the percentage of elimination has been computed for boys, girls and both for the ten districts:

TABLE XVIII.

A. RETARDATION *vs.* ELIMINATION OF THE TEN DISTRICTS.

District	Boys		Girls		Both	
	Retardation	Elimination	Retardation	Elimination	Retardation	Elimination
1	41.9	66.0	41.7	56.5	41.8	61.2
2	45.9	74.2	43.2	73.4	44.5	73.8
3	48.1	80.2	45.8	78.7	47.0	79.4
4	46.0	62.9	44.4	53.0	45.1	57.9
5	46.1	56.4	43.3	59.6	44.7	58.0
6	37.2	58.8	37.3	48.6	37.2	53.6
7	36.8	74.4	34.2	69.4	35.5	72.0
8	40.1	56.2	36.9	51.5	38.5	53.8
9	37.5	63.2	34.5	65.0	36.0	64.1
10	35.9	59.9	30.6	56.6	33.3	58.3
Totals	41.7	65.6	39.2	61.7	40.3	63.3

B. THE SAME ARRANGED IN ORDER OF AMOUNT OF RETARDATION.

District	Both	
	Retardation	Elimination
3	47.0	79.4
4	45.1	57.9
5	44.7	58.0
2	44.5	73.8
1	41.8	61.2
8	38.5	53.8
6	37.2	53.6
9	36.0	64.1
7	35.5	72.0
10	33.3	58.3
Totals	40.3	63.3

It will be noted that the rate of elimination for girls is less than that for boys, being 61.7 per cent for the former with 39.2 per cent of retardation, and 65.6 per cent for the latter with 41.7 per cent of retardation. The elimination rate for both is 63.3 per cent as against 40.3 per cent of retardation.

In table XVIII B the districts have been arranged according to the amount of retardation with the corresponding elimination. District 3 has the highest rate of retardation and also of elimination. Districts 4, 5 and 2 vary little in retardation, but Districts 4 and 5 have much lower rates of elimination than District 2. District 1 has a medium retardation rate, and likewise a medium elimination. District 8 has a retardation which is higher by 2 per cent than that of District 9, but its elimination rate is lower by 11 per cent. District 6 has a rather low rate of retardation, and the lowest elimination. District 7 with a retardation of only 35.5 per cent has an elimination of 72.0 per cent. This great elimination accounts for a mill district with poor social conditions having such a low rate of retardation. District 10 has the lowest retardation rate, 33.3 per cent, and also a low elimination rate, 58.3 per cent. District 6 has a retardation of 37.2 per cent with an elimination of 53.6 per cent. The retardation and elimination rates of Districts 6 and 10 taken together tend to approximate each other, but the social conditions are very different in the two districts. It would seem from what has already been said of District 6 that the adverse conditions had, in a measure, been overcome by supervision. The elimination is low because the retardation is low. It is failure to advance that raises the elimination, as may be seen by the dropping out of large numbers of pupils after the semi-annual promotions.

District 7, with a retardation of 35.5 per cent and an elimination of 72.0 per cent, seems to contradict the statement just made, but it must be remembered that District 7 is a factory district where it is *customary* for the children to go to work as soon as they are fourteen years old. It seems that foreign parents are more anxious that their children should remain in school, when this is possible, if they are making progress.

Summary:

(1) The retardation rate is often misleading in making comparisons where the elimination rate is not known.

(2) The less retardation, if we except abnormal conditions (large proportions of foreign or negro population, factory districts, and in general very low social conditions), the less elimination we find.

(3) Supervision may, by decreasing retardation, also lower the elimination rate.

Retardation by Districts According to the Falkner Method.

In a recent article by Falkner[1] in THE PSYCHOLOGICAL CLINIC, the common method of calculating retardation has been objected to as being cumbersome and not giving the true amount of retardation, because it fails to recognize elimination, which begins at fourteen years of age. It is suggested that retardation be calculated on a basis of the number of thirteen-year-old pupils who have not reached a certain grade, in other words that retardation be calculated at its maximum. The following table compares the retardation of the ten districts as calculated by the two methods.

TABLE XIX. RETARDATION BY FALKNER METHOD AND REGULAR METHOD.

A. IN ORDER OF DISTRICTS.

District	Falkner Method	Regular Method
1	69.3	41.8
2	73.2	44.5
3	76.1	47.0
4	68.9	45.1
5	70.3	44.7
6	62.0	37.2
7	67.3	35.5
8	66.8	38.5
9	65.6	36.0
10	57.6	33.6

B. IN ORDER OF AMOUNT OF RETARDATION.

District	Falkner Method	District	Regular Method
3	76.1	3	47.0
2	73.0	4	45.1
5	70.3	5	44.7
1	69.3	2	44.5
4	68.9	1	41.8
7	67.3	8	38.5
8	66.8	9	36.0
9	65.6	6	37.2
6	62.0	7	35.5
10	57.6	10	33.3

It will be noted that the maximum retardation by the Falkner method is 76.1 per cent in District 3, as against 47.0 per cent in the same district by the regular method, and that the minimum is 57.6 per cent in District 10 as against 33.3 per cent in the same district. Most of the other districts change order in amount of retardation when the Falkner method is used. District 1 is one point out; District 2, two points out; District 4 is three points out; District 5 remains the same. District 6 is one point out; District 7, three points; Districts 8 and 9, each one point out. The falling of District 4 from second place by the regular method

[1] Falkner, R. P. The Fundamental Expression of Retardation, THE PSYCHOLOGICAL CLINIC, Vol. IV, No. 8, Jan., 1911, p. 213.

to fifth place by the Falkner method is due to the comparatively low rate of elimination, 57.9 per cent. District 7 changes from ninth place by the regular method to sixth place by the Falkner method on account of its high rate of elimination, 72 per cent.

The Falkner method evidently gives a much truer measure of an educational system if the elimination rate is not known, than does the regular method. On the other hand, it fails to take into consideration the entire number of pupils enrolled. It is valuable as a supplementary method to check up results, and will often make the retardation statistics clearer and uncover facts that otherwise might pass unnoticed.

Summing up the results of this investigation we note that to the pedagogical and psychological factors already recognized as contributing to retardation, we must add a third, the sociological factor.

From the psychological point of view, we see the need of conditions which will make possible the giving of more attention to individual pupils, not only in their school work, but in deciding whether it is for the best interests of the pupil to be promoted or left down, irrespective of the requirements for the average.

From the sociological point of view, we see the need of a flexible course of study. The enrolment of the schools is made up of various sociological units, which with their varying home conditions, must be carefully scrutinized before a fixed course of study is laid down for all. In the case of the negro, it seems that the curriculum at present is entirely unfitted to his capabilities. Apparently, the solution of this problem is to be found only in organizing colored schools with a special curriculum.

Supervision, we have seen, may reduce the retardation to a small extent by making wholesale promotions. This, however, is an attempt to remove the effect without eradicating the cause. On the other hand, by recognizing the psychological and sociological factors in the problem and making adequate provision for them, supervision may reduce the amount of retardation to a minimum.

REVIEWS AND CRITICISM.

We and Our Children. By Woods Hutchinson, M.D. New York: Doubleday, Page & Company, 1911. Pp. x + 371.

There was a time, not very remote, when medicine, physiology, and everything connected with them, were thought of as dark mysteries into which the layman could not look with impunity. The doctor was a man of uncanny powers, and the average ailing mortal was quite willing to place upon his professional shoulders all the risks that might arise from meddling with the laws of the body.

When the day of the modern medical textbook came, a great mass of useful knowledge was still hid from the everyday person under a verbiage whose technicality precluded inquisitive pryings. Even now the average textbook of medicine or physiology shows sufficient evidence of the fact that eminent scientists are not necessarily born writers or teachers.

The ever-growing demand, however, by the reading masses for comprehensible books on these matters has stimulated more and more successful attempts to put information into what is termed "popular" language. The medical writers are beginning to see the value of a literary style, and now and then a writer of real genius arises in that learned profession. Such a man has recently been making his presence felt by contributing articles of very great value, on subjects of medicine, hygiene, and the like, to popular magazines. And now comes a collection of excellent papers by him under the title "We and Our Children," a book well worth notice.

This book embraces a wide range of related subjects, from a short chapter of simple advice, useful before the coming of the child, to a chapter concerning the overworking of children "on the farm and in the school." It cannot be said that much is brought out that is new. This quality would almost be superfluous, for the reason that reliable information on such subjects is bound to be new, as far as the average reader is concerned. Although the articles on the care of infants, the play of young children, the direction of their diet, and looking after their teeth, eyes and ears, do not contain much novel information, they do bring home to the average parent a fundamental knowledge of which too many are ignorant. To be sure Dr. Hutchinson shows us things now and then from unusual viewpoints, and amuses himself by breaking down, whenever he feels inclined, our common ideas, for instance, as to a deterioration of sight, hearing and smell as civilization develops. Particularly does he defend the American mother against the charges of physical incompetency, of selfishness, and of mismanagement of her children. His arguments are not mere rhetorical flourishes; they are supported by reasons which are not only well put, but on the whole strongly and incontrovertibly put.

Very excellent, too, and about the most interesting chapter is that entitled "The Delicate Child." Under this heading are discussed not only the delicate and nervous child, but many important problems closely concerning the ordinary, everyday child, the ills that may assail him, and the crimes that with the best intentions in the world his own parents are likely to perpetrate upon him. Dr. Hutchinson makes a strong attack on the fallacy that the usual "plain" diet is best for children, and encourages a radical breaking away from our established ideas as to what children should eat and what quantities of different foods they should have. He strongly voices the plea that with younger children the physical condition be largely depended upon to develop such "moral nature" as the child needs, on the old and proven theory that the sound body is likely to produce a sound mind. In this chapter he brings out clearly the value of the summer camp for boys and girls. "Here," says he, "the youngster can be given a chance actually to live and put into practice his daydreams, with paddle and moccasin and eagle feathers, and become for the summer a healthy, happy, unworried and brainless young animal." Such a life, according to Dr. Hutchinson, is much superior in its effects to that prevailing when boys are "torn out of their natural home surroundings and forced to herd together in dormitories and within bounds." But in a camp, "His absence is just long enough to develop a good, healthy attack of homesickness and appreciation of his privileges and blessings in the family circle, and at the same time to give opportunity for the development of a similar mellowing process in the mental attitude of the members of the family toward him."

Finally, in "The Worship of the Race Stream" Dr. Hutchinson touches upon important subjects in a wonderfully lucid and unusual way, giving us thoughts that cannot help but induce serious reflection which may lead to practical results.

C. K. T.

NEWS AND COMMENT.

Standard Form for School Financial Statistics.

The U. S. Census Bureau has issued a pamphlet in which Messrs L. G. Powers and W. S. Small present and describe a standard form for reporting the financial statistics of public schools. The proposed form "is the logical outcome of a schedule arranged jointly by the Bureau of the Census and the U. S. Bureau of Education in the spring of 1909. Its use by the agents of the census for a few cities in 1909 and for all the cities of the country of over 30,000 inhabitants in 1910 demonstrated the need on the part of our city school systems of some common method of recording and publishing financial and other data. That use also disclosed certain imperfections of the schedule itself. In 1910 the Bureau of the Census, by correspondence and conference with representatives of the U. S. Bureau of Education, the National Education

Association, and the National Association of School Accounting Officers, and with many school superintendents, worked out the form of report here presented and the accompanying instructions. These are offered in the hope that study and discussion of the same may lead to the adoption of a uniform method of reporting financial data by the public school systems of the country."

Among the advantages of the new form are the following:

"1. It makes a sharp distinction between *expenses*, or costs of conducting school systems, and *outlays*, or costs of acquiring, constructing, and equipping permanent school properties, and calls for the separation of the two classes of costs, each from the other, and both from all other expenditures.

"2. It provides for an orderly arrangement of all receipts and payments under significant titles. In terminology and classification it corresponds with Schedule G 34 now in use by the Bureau of the Census for reporting the financial statistics of schools. . . .

"3. It presents a double classification of payments according to (a) the object of payments, and (b) the kind or type of educational activity thereby supported. Thus payments for teaching (an object of payment) are distributed into those for elementary schools, secondary schools, etc. (a kind of educational activity). This double classification is systematically carried out."

In closing their monograph the authors make a suggestion which will be cordially approved by all who have occasion to use public school statistics. "It is recommended that cities and school districts, . . make reports showing their financial transactions for a period identical with their school year. Such reports, if generally prepared, would make school statistics strictly comparable, and thus of greater value than at present."

Copies may be obtained on application to E. Dana Durand, Esq., Director of the Census, Washington, D. C.

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HOW DETROIT CARES FOR HER BACKWARD CHILDREN.

By W. C. Martindale,

Superintendent of Public Schools, Detroit, Mich.

While much has been said concerning the advisability of placing backward children in special classes, and the examination to be given to such children upon entrance, little if anything has been said concerning the method of procedure to be followed before a child can be transferred from a regular room to one of the special classes.

In Detroit a systematic plan has been worked out which has been in effective operation for the past two years, and is well worth consideration. Special education for backward children has been carried on in Detroit for the past ten years. Work was begun in 1901, with the opening of one room, and since that time, eight additional rooms have been opened. From the beginning, it was found that a great many low grade children were placed in these rooms who were purely institutional cases. To eliminate these children, without giving offense to the parents, has been a long and serious problem.

From its introduction the work has been in charge of a Child Study Committee, organized by Superintendent Martindale. This committee is made up of the President of the Board of Education, who acts as president; the Superintendent of Schools, who is a member ex officio; the Director of Kindergartens; Supervisor of Ungraded Rooms; Supervisor of Primary Grades; Principal of the School for the Deaf, and the General Supervisor, who acts as secretary of the committee. The committee assumes the entire responsibility for every pupil's admission to or exclusion from the special rooms, and that the work has been carried on in a wise and judicious manner is proven by the fact that few, if any, parents have ever objected to the rulings of the committee.

In the fall of 1910 the Department of Special Education was organized and the nine special rooms, the school for cripples and schools for stammerers were placed under the direct supervi-

sion of the General Supervisor. She plans and directs the work of the special rooms, and assists the teachers by her helpful suggestions and sympathetic aid.

For the past two years the Binet-Simon tests for intelligence have been used as a basis to determine the mentality of backward children. When a principal or teacher arrives at the conclusion that a child is backward, a blank form called "Notice to parent" is filled out and sent to the parent asking him to consult his family physician concerning the child. If no results follow, the school principal then calls upon the regular school physician to make a physical examination of the child in order to ascertain if his backwardness is due to defective vision, defective hearing, adenoids, enlarged tonsils, or nervousness. The principal reports the result of this examination to the parent. If the parent is unable to provide proper medical attention the principal then reports the case to the Child Study Committee. This committee is able to provide free medical assistance to all needy children through the voluntary service of the best specialists of Detroit. These specialists upon receipt of a note from the secretary of the Child Study Committee, examine free of charge any children who are brought to them, and if it is necessary to perform an operation for adenoids or enlarged tonsils, they will arrange that this be done. Where children cannot afford glasses, these too are provided without cost from a fund set aside by the Detroit Teachers' Association.

Since September, 1911, two hundred and fifteen pupils have been treated for defective vision and provided with glasses. A large number of cases of adenoids and enlarged tonsils have been operated upon and treatment given for nervousness, deafness, defective teeth, and infantile paralysis.

After the child's physical defects have been remedied, if his mental condition still remains unchanged the case is again talked over carefully by the parent and the principal. The latter explains to the parent just what has been the result of the investigation so far with regard to the child and the effect of his mental or physical disability upon his work in school. The principal then proceeds to question the parent regarding the ancestry of the child, his home peculiarities, any illnesses that he may have had and any hereditary diseases which might have been transmitted to him. The teacher fills out the school history of the child, together with his personal characteristics. This report is then sent to the office of the Child Study Committee in duplicate. The Binet examiner, appointed by the Board of Education, then visits the school which the child attends and gives

him the Binet test. Within a day or two the special physician appointed by the Board of Health to work under the direction of the Board of Education in its work of caring for the backward children, visits the school and makes a physical examination of the child. The statement of the parent as given in the report sent to the secretary of the Child Study Committee by the principal, together with the child's school history, reports of the Binet examiner and of the school physician, are then passed upon by the Child Study Committee.

In the cases of low grade children whom the committee thinks it advisable to exclude, a second examination is made of the child by one of the mental specialists of the Child Study Committee consultation staff. If he classes the child in the low grade group the case is again brought to the Child Study Committee and usually results in the exclusion of the child. This is done by sending a notice to the parent stating that his child has been excluded. The report and the notice of exclusion are signed by the Child Study Committee.

No definite rule can be made to decide what children shall be admitted to a special room, as every child's case is unlike that of any other child. In general, children above the Third Grade are not admitted to Detroit special rooms, and no pupil under nine years, unless he is two years behind grade, or over nine years, unless he is three years behind grade.

While this is the guiding principle, still it is by no means closely adhered to, as the condition of the child frequently shows that he should be placed in a special room, even though his classification indicates otherwise. After it has been decided to send a child to the special room, the principal of the school to which he belongs is notified. The principal in turn notifies the parent, and if there is no objection on the part of the parent, the child is transferred. If, on the contrary, the parent does object on account of the distance or for any other reason, the case is dropped temporarily. Since September, 1911, 488 cases have been examined. The committee has recommended 190 of this number to the special rooms. Out of this number, the parents of only sixteen have refused to allow their children to attend. Thirty-five children, who have been examined, have been unable to attend because there was no special room accessible to them. Car fare is provided by the Board of Education in all cases where it is thought necessary by the principal, but it is not deemed advisable to send children to a special room unless they can reach it by a direct car line.

Two years ago the new classification, which includes in the feebleminded group three classes of children, the moron, imbecile and idiot, each of which is sub-divided into three grades, high, middle and low, was adopted by the Child Study Committee. It was decided to exclude from the Detroit public schools, all children in the idiot group and also those in the middle and low grade imbecile groups. This rule has been rigidly adhered to, as it is considered a waste of public funds to attempt to teach children of these classes, who are regarded by all specialists as unteachable. This feature of the work is very important; it means the thrusting upon the streets of numbers of children who have no other place to go, because in Michigan, as in every other state, provision for the feebleminded is far from satisfactory. It is hoped through these severe measures to secure the establishment of a Home for Feebleminded Children, located in the vicinity of Detroit, the necessity for which can be shown in no better way than through letting the public know the number of children who are in the middle and low grade imbecile and idiot group.

A recent mental and physical examination of all the pupils in the special rooms has just been completed and some interesting facts disclosed. While no child has ever been placed in a special room without a physician's examination, this was the first time that a mental examination had been made of pupils who were in special rooms before the introduction of the Binet tests, two years ago. The Department of Special Education has been kept so busy examining applicants for the special rooms since the introduction of the new system that it had not been able before to make an examination of pupils already in the rooms.

Of the 120 children examined, 16 were found to be of such low grade that they have been excluded permanently from the public schools; 57 were found who, while they can profit to a certain degree by continued attendance in these rooms, have no prospects of ever leaving the special room; 47 of the pupils have prospects at some time within five months or a year of being returned to their regular classes.

The work of the Detroit special rooms might be said to be three-fold:

1. It acts as a clearing house to eliminate low grade children from the schools.

2. It provides a place where middle grade feebleminded children may be given the advantage of some slight educational training combined with a large amount of hand work, which is

selected with a view toward its providing them with some means of livelihood later on.

3. It provides a place where children who are merely backward for various reasons may be placed for a length of time, varying from one year to two, in order that special assistance may be given them to make up grade work.

We are looking forward to the time when rooms will be established where the children who are now excluded, may attend for perhaps half a day and receive attention in hand work and games which will vary the monotony of their lives. It is possible that in the near future we shall also again divide these rooms and have those children that are merely backward in one class of rooms, while those for whom there is no hope of ever being returned to a regular grade shall remain in rooms by themselves.

The present method, however, has its advantages in that there is less opposition to the segregation of feebleminded children where all are classed as backward, than there would be if these unfortunate children were placed in a room known to be maintained for the express purpose for caring for mentally defective children. For the same reason special rooms in Detroit have not been centralized, but one room is set aside in each of nine different buildings. These children therefore come into contact with normal children on their way to and from school and at recess time, which is no doubt of much benefit to them, and at the same time it makes the special rooms of much easier access to the children who are enrolled there.

The teaching corps is composed of some of the strongest and most progressive teachers in our teaching body. Three of the nine special teachers have had special courses at the Vineland Training School and University of Pennsylvania, and two others intend to take up work at these institutions the coming summer.[1] The General Supervisor in charge of the work has also had advantage of a special course at Vineland, N. J.

Concerning the work of the children who will probably never be promoted from the backward room, very little is required of them in the line of reading and especially of number work. They are taught the ordinary school subjects individually, but their life is not made miserable by trying to teach them something which we believe would be for them a physical and mental impossibility. For them great stress is placed upon the hand work which occupies practically all the time when they are not engaged in recitation work with the teacher.

[1] This article was written in the spring of 1912.

The backward children who are in the special room because they have fallen behind their class on account of illness or of some cause other than a physical or mental defect, are given special assistance in order to bring them up to grade, and while they do some hand work their time is mostly occupied in doing the tasks assigned pupils of regular classes. Children who have prospects of promotion are also sent to recite in one or more of the classes of the regular grade to which they belong. Here they are kept in touch with normal children and have the advantage of hearing the recitations. They are sent to the regular rooms for language and geography recitations, but in the preparation of the lessons are assisted in their own room by the special teacher.

The privilege of attending manual training classes is given to all pupils of the special rooms, irrespective of their age and grade. Through this arrangement the pupils have the advantage of the guidance of a trained teacher, and in the three hours a week, which some of the boys spend in a carpenter shop, much profitable work is done. While a number of the older girls have successfully attended the cooking classes, the work which is given them by the sewing teacher is, perhaps, on the whole more beneficial, and as a result, many of these girls may in time become efficient seamstresses.

Basketry has grown to be such an important feature that it can no longer be regarded as anything less than an industry in the special rooms of Detroit. Both reed and raffia baskets of all sizes, shapes and styles are made by the deft fingers of these boys and girls during a regular basketry lesson, as well as in all the spare minutes when they cannot profitably be employed upon ordinary school work.

A new impetus has been given this work through the Board of Education having granted permission for the pupils to sell the products of their work done in school and to retain all of the selling price less the cost of the material. This plan has been the means of retaining the interest of a number of the older pupils in the work of the special room during the period when they become restive, after having been in the room for a length of time, and their parents wish them to leave school and go to work. While it is indeed a difficult matter to keep some of the older pupils in the special rooms, still the great good that will be done by keeping the border-line cases in school as long as possible, and through hand work, nature work and good literature fitting them to become self-sustaining and self-respecting citizens cannot be over-estimated.

A SURVEY OF MENTALLY DEFECTIVE CHILDREN IN THE SCHOOLS OF SAN LUIS OBISPO, CALIFORNIA.

By Lewis M. Terman, Ph.D.,
Associate Professor of Education, Stanford University, Cal.

San Luis Obispo is a town of about five thousand inhabitants in the south central part of California. Its people differ little from those of other well-to-do cities of similar size in this state. With the exception of a small Spanish element they (or their parents) have migrated here from various eastern states. The population includes progressive farmers, trades-people, a sprinkling of professional men, and the families of several hundred skilled laborers on the slopes of the Southern Pacific Railroad. The children enrolled in the grades below the high school number somewhat more than six hundred.

The newly-elected superintendent of schools, Mr. Charles R. Small, had noted with much concern the large number of over-age pupils in the grades. He had already formed two ungraded rooms in which special instruction was being provided for about thirty children. Some of them were making satisfactory progress, but by no means all. There were also several other puzzling cases in the schools for whom special classes had not been provided, children who had repeated grades over and over until they had become either apathetic or incorrigible. It was the anxious desire of the superintendent to secure all available light on these school failures which prompted him to call in the assistance of the writer in the conduct of the Binet and other mental tests.[1]

Twenty-four pupils were examined and reported on. These were by no means all of the difficult cases in the school, but only this number could be tested in the week available. It is hoped the following summary of the results of the survey, together with a brief description of some of the cases examined, may serve to direct the attention of other superintendents to that large class of children in the public schools who range somewhat above

[1] Superintendent Small, who is a Harvard graduate and a wide-awake school man, entered the profession only a year ago from the ministry. It is interesting to note that immediately after beginning his work his attention began to gravitate toward some of the fundamental problems of school administration until lately so utterly neglected by the average "routine" superintendent. It is an interesting illustration of how the weak spots of a system can best be apprehended by one who has not become its slave.

the border line of true feeblemindedness but decidedly below the level of normality. Our interest in this class of children has greatly increased in the last few years, for we find evidence that from it are recruited probably one-fourth of our habitual criminals and a still larger proportion of our paupers and "white slaves". The children of subnormal mental endowment undoubtedly constitute one of our gravest social problems, one which closely concerns the schools but to which they have thus far paid very little attention.

The following table shows the real age and the "mental age" of the twenty-two retarded cases who were examined. Children

Mental Age	Chronological age in years										
	17	16	15	14	13	12	11	10	9	8	7
17											
16											
15											
14											
13											
12			1								
11			1								
10			1	1							
9	1		3	1	1	1		1			
8					1			1	2		
7								1	2		
6							1	1			
5											1

of normal mentality would be tabulated in the black-faced squares, while the distance a child falls below the black-faced squares represents in years the amount of his retardation in intelligence. The table for example shows one 17-year-old pupil with a mentality of 9 years; six 15-year-old pupils, of whom three have a

mentality of 9 years; one 11-year-old who has a mentality of 6 years; etc. Of the twenty-two cases, fifteen have an intelligence 3 years or more below the level for their age; twelve are 4 years or more below normal; and eight 5 years or more.

By the use of a rather elaborate "characterization blank" of the German type, descriptions and miscellaneous data were secured regarding each child. Though the information available was far from being as extensive as desired, it was possible to give with a fair degree of confidence certain conclusions and recommendations in most of the cases. A few of these descriptions and recommendations are here presented. They contain no especially notable features, but as concrete descriptions may serve to call attention to similar cases in other schools.

(1) D. C.

Teacher's description. Boy, age nearly 17, fifth grade. Can not do work of this grade satisfactorily.

Portuguese family, well to do, English spoken at home. Ten children, most of whom are stupid.

Weight 186 lbs., slightly stooped, rather good looking, no serious physical defects, no time lost by illness.

Quiet, sleepy. Has no self-confidence. Polite, generous, well-behaved. Intellectual ability even; mental processes slow; easily distracted; soon wearied; memory very poor; cannot commit verses to memory. Tattles; ideas vague; thoughts absurd; imagination weak. Does not appreciate stories. Voice loud and monotonous.

Reads fourth reader; drops syllables; no memory for things read; no home reading. Writing fair on the mechanical side; spelling and punctuation poor. Poor in arithmetic. Neat in drawing. Plays little and shows little social spirit in his play.

Tests and recommendations. Mental retardation 8 years (tests barely 9 years). Mentality weak in every direction. Note failure on "absurdities". Case of true feeblemindedness (high grade). Mentality will probably never reach above 11 years.

Seems thoroughly stable and dependable, and considering his excellent physical equipment and good appearance should be able to get along in some simple vocation. Advise that effort be abandoned to bring him up through all the usual work of the grades and that emphasis be placed on the things strictly necessary for getting along in the world. *The important thing is to make such cases self-supporting and to instil a liking for some kind of employment.*

(2) J. F.

Teacher's description. Boy, age almost 13 years. High second grade, started to school at 7; can do no work of grade he is in.

Good family, well to do. Three other children, none retarded in school.

Eyes poor; throat bad; stooping posture.

Quiet, shy, fearful; lacks physical energy; without self-respect or self-confidence. Polite, obliging, modest, conscientious and generous. Mental processes slow; tries to attend; memory poor in all school work; ideas vague and slowly formed. Sensitive; appreciative of stories. Speech whispering and nasal; poor singing voice. Poor in colloquial expressions. Plays few games. Reads the first reader, the second with difficulty; learns words slowly; makes mistakes on small words; reads none at home. Writes fairly well. Arithmetic fair. Accurate and neat in drawing; good taste in color.

Tests and recommendations. Mentally retarded nearly 5 years (tests a little above 8 years). In conversation appears less dull than he really is. Mental condition probably aggravated by eyes and throat. Mind may brighten a little if he is fixed up physically but will always be weak. Being apparently of the stable and reliable variety he may be made self-supporting and able to look after his own affairs if they do not become too involved. The regular class is the last place where he ought to be. J. will reach adolescence in a couple of years. If he is ever to make any progress it is important that it begin before that time. Diligent search might reveal some lines of activity in which he could meet fair success.

(3) R. H.

Teacher's description. Boy of 14½ years. German parentage, rather poor, English spoken at home. Five children, mother dead, father an old man. R. is cook and housekeeper. Drinks much strong coffee. Teeth defective. Began school at 6, and is now in the fourth grade. Repeated grades one and three; cannot do present work satisfactorily. No time lost by illness. Learned to walk at two years and to talk at three years.

Polite, obliging, modest and conscientious.

Ability even. Very slow in school work, but reads newspapers and talks much of current events. Just now interested in the present Mexican trouble. Memory poor for all school work; mental processes slow; is appreciative of stories. Voice clear; speech connected. Comprehends commands slowly.

Reads fourth reader with hesitation and lack of expression. Writing fair. Can do almost nothing in arithmetic. Draws fairly well. Enjoys the music period. Talks as long as anyone will listen to him about the mechanism of air ships. Plays little on the school ground, but at home is often building play houses or making doll furniture for the little girls.

Tests and recommendations. Mentality 9½ years; 4 or 5 years retarded. Lateness in walking and talking a bad indication.

Least retarded in vocabulary and practical judgment. Weak in handling of abstractions, *e.g.,* gives *blue* as opposite of *black; long* as opposite of *thick; black* as opposite of *dark,* etc.

Note failure on "stamp test" and making change for 4 cents out of 25. Strongly advise that he be placed under a good special teacher and taught the elemental things he will have to know; don't try to cover the whole curriculum. Judging from the supplementary blank R. appears to have some constructive ability that ought to be given a chance. It might be possible to use construction problems as a vehicle for getting some number concepts into his head.

(4) M. M.

Teacher's data. Girl, age 15. Present grade 5b; does work of this grade poorly. Swiss-Italian parentage; English spoken in the home. Parents well to do, but give little attention to matters of diet, sleep, etc.; mother "peculiar". Brothers and sisters not retarded. No time lost by illness. Eyes and ears good; teeth fair; stooping posture; muscles twitch.

Touchy, whimsical, restless, talkative. Laughs hysterically, unsteady in movements. Lacks self-respect and self-confidence. Vain, flighty, suspicious; tattles; plays underhand tricks.

Intellect uneven and flighty. Attention poor, easily distracted; absent-minded; memory uniformly poor. Ideas vague and confused; thoughts absurd and foolish; imagination weak and easily excited. Likes stories and poems. Speech sharp. Poor in comprehension of commands and conversations.

Reads in the fourth reader inaccurately; no memory for things read; no reading at home. Writing fair. Drawing very poor. Special liking for music. Plays little and knows few games; shows no social spirit in play.

Tests and recommendations. Tests at 9½ years; mental retardation of nearly 6 years. Has a fluency and readiness of language which with fairly normal physical maturity make her seem less dull than she really is. Notable failures, arranging

weights, ball and field test, questions of comprehension in year IX, making change, absurdities, etc. Touchiness, whimsicality, tendency to tattle, play underhand tricks, etc., taken together, indicate a persistence of infantile traits. Should remain under special instructor. As she likes to cook it would be a splendid thing if she could devote half of each day to training in housekeeping. Her life success depends wholly on the latter, not on instruction in grammar, advanced arithmetic, geography, history, etc. She will never learn much in these. Her entire disposition might be improved by such a change in her schooling. M. is fairly attractive in appearance but weak and of less than average sense of responsibility. It is not necessary to dwell on the moral dangers involved in this combination of traits.

The remaining cases were not less interesting. Almost every schoolrom has one or two problems of this general type. The city of five hundred school children usually has about two dozen of them. A city of the size of San Francisco, Los Angeles, Seattle, or Indianapolis, may be expected to have about a thousand. They clog the educational machinery. They consume a disproportionately large part of the regular teacher's energy. They pull down the standard of achievement for other children. Finding themselves chronic failures they either become disheartened and dejected, or else they grow case-hardened and apathetic. They drag along to the third, fourth or fifth grade, sometimes the sixth or seventh; but the regular work of the last grades they never do satisfactorily. Grammar, arithmetic and the more abstract features of other subjects they cannot master. Usually they have not thoroughly learned the multiplication table when they leave school at the age of fourteen or fifteen.

Most of them would be capable of learning a trade if they had the opportunity, and in no other way can the school help them so much as by affording them the kind of education which will make them self-supporting. Children who cannot compete on equal terms with their fellows in the schools will not ordinarily be able to compete on equal terms with others in the business world. Hence they become industrial drags after they leave school. Vocational unfitness is the open door to crime, vice and pauperism.

In the absence of educational facilities for vocational instruction, what can the average city do for such children? The writer's answer to this question is contained in the following recommendation to Superintendent Small, relative to the retards of San Luis Obispo.

"You will understand, of course, that as the result of an hour's examination it is impossible for one to outline fully the form of training which will best suit the individual child. The exact needs of each child can be ascertained best by a capable special teacher, who has the pupil in his charge every day and is able to make all kinds of side explorations into his personality and intellectual abilities. The Binet tests, however, do give an extremely accurate estimate of the innate intellectual ability in general.

"I have advised the special class for the large majority of the pupils tested. It seems to me there can be no doubt about the advisability of this in most cases provided you can secure the right kind of special teachers. The very fact that these children have been failing every year is itself an indication that something radically out of the ordinary will have to be done for them if they are to be kept from utter discouragement by repeated failure. The important point is to make their work consecutive instead of repetitive so that they will be forging ahead constantly instead of going over and over what they have already tried. In the special room as little as possible should be said about the grade. The pupil might even be kept entirely in ignorance of the grade he is in. It will sometimes give the pupil greater confidence not to know how far behind the others of his age he may be.

"It strikes me that you could use some of the results of this survey as a good argument for the introduction of manual training, domestic science, etc., into your schools. These subjects are of course, good for all the children, but for many of these special cases they are indispensable. At least fifteen or eighteen of the cases examined are strictly on the border line between normal intelligence and what is usually recognized as true feeblemindedness; that is, they are mentally weak. Mental weakness frequently, if not usually, includes moral weakness; sometimes, also, physical disability. It is thus highly important that such children be taught a vocation of some kind so that they can be self-supporting and will not be tempted into lives of crime or left dependent upon their families. For such children there can be no question of following the regular schedule of studies. There is extremely little geography that they can learn, very little American history that they can appreciate and their ability for grammar and advanced arithmetic is in many cases *nil.* They will need to be placed in small ungraded classes under teachers who have had special training in the conduct of work with backward children. Each child will need to be made a special problem. The *per capita* expense for

such instruction is greatly in excess of the average, but in the end it will be cheaper than the present policy of neglect."

In conclusion, a few additional points deserve emphasis.

The first concerns the value of the improved Binet scale as a means of getting a definite idea of the intellectual status of a child. Teachers sometimes assert that there is no need of psychological tests to differentiate the dull child from the bright. It is true, of course, that common observation does tell us in a general way whether the child is dull, but it does not give us definite or usable standards by which we may judge the exact degree of dulness.

Moreover, observation unaided by tests leads often to entirely erroneous judgments in regard to dulness. Not infrequently it fails to distinguish between real, native dulness and mental retardation which has been artificially induced by lack of educational opportunities or by unfavorable home environment. For example, one of the boys tested in this survey, whose intelligence was strongly suspected by his teachers, was found by the tests to have almost normal mentality. His apparent dulness was largely accounted for by the fact that his parents were uneducated deaf-mutes.

Perhaps still more frequently the teacher *overestimates* the intelligence of the retarded child. She tends to use the same standard for all the children in her class regardless of age differences. The writer has found several instances of almost ludicrous mistakes due to this fallacy.

For example, eleven-year old A. P. was in the low second grade. She was able to do the work of the grade, not well, but almost passably. Her teacher concluded therefore that A. P. was only a little less bright than the other children of her class. What the teacher overlooked was that A. P. was being measured by a seventh-year standard of intelligence, and that instead of merely being able to do second grade work indifferently she should have been equal to the work of the fifth or sixth grade. *In reality, A. P. is a feebleminded child, with a mentality of barely six years.* She could not carry out the three commands or repeat sentences of twelve to fourteen syllables, in the fifth year group of tests. She did not know the month of her birth, the right hand from the left, could not name the days of the week or months of the year, or state what month it then was. She failed on the simple "question of comprehension" in the sixth year group, was unable to name four common coins, arrange the weights or give the value of the stamps.

Again the case of D. C., who was nearly seventeen years old and in the fifth grade, illustrates the same fallacy. His teacher knew he was dull but had never thought of him as belonging to the class of feebleminded children. She had judged this young man by the eleven-year standard of children's intelligence. She may have been further deceived by his rather intelligent looks and exceptionally satisfactory behavior. But D. C., although nearly seventeen years of age, has barely nine-year-old intelligence. His vocabulary is that of the average child of eight years. In the tests he failed to repeat sentences of fourteen to sixteen syllables or remember five digits, or name fifty words in two minutes. There is little chance that he will ever exceed the normal ten-year-old child in understanding and prudence.

It will be an interesting and important task to follow the later histories of children whose intelligence has been found two, three, four or five years retarded at a given age. We want to know, for example, what may be safely predicted regarding the later development of a child who has been tested say at nine years and found three years retarded. When a sufficiently large number of such cases have been followed up we will be in a position to predict with a good deal of assurance (taking all pertinent circumstances into account) whether the child above mentioned is likely to have at fourteen years a mentality of eleven years, or only ten, nine or even less.

Finally the writer would suggest the desirability of coining a special name to designate the border-line cases. The term "feebleminded" has a connotation which makes it objectionable for this purpose. In educational matters, at least, the old saying that "there is nothing in a name" is not true. *It is practically certain that as long as we include these children in the class called normals nothing will be done for them educationally.* Just the right name coined to designate them may direct sufficient interest and attention to the class to revolutionize within a few years our educational efforts in their behalf.

ENROLMENT BY GRADES IN FOURTEEN SCHOOL SYSTEMS OF CENTRAL ILLINOIS.

By G. W. Gayler,
Superintendent of Schools, Canton, Illinois.

The following brief study of the enrolment by grades in fourteen school systems of Central Illinois is based upon the enrolment for the month of September, 1911. The statistics were furnished by the superintendents of the several schools in response to a request sent by the writer. The purpose of the investigation was to secure statistics to be used in comparing the grade enrolment of the several cities with the enrolment in the writer's home city. It has been deemed worth while to place some of this material before the public with the hope that it will be helpful to other superintendents.

Table I gives the enrolment by grades of the fourteen schools. The most fundamental fact shown is that with rare exceptions there is a constantly decreasing enrolment from the first grade to the senior year of the high school. The exceptions to this rule come most often in the second grade. In five instances we find the enrolment in the second grade dropping below that in the grade next higher, and in four cases it is less than the enrolment in each of the next two grades. In six instances the enrolment in the fourth grade is greater than that in the second, while in two cases there is a larger enrolment in the fifth grade than in the second.

The total enrolment in the last four grades (high school) is 5296, only 48 more than the number in the first grade, and 121 less than the enrolment in the seventh and eighth grades. When it is remembered that many of these pupils come into the high school from the adjoining country which does not give them high school advantages it will be seen that a comparatively small per cent of the pupils who started in the first grade remain to enter the high school. The enrolment for all schools in the senior year is 866, about one-sixth of the number in the first grade.

According to the figures given in this table the elementary graded school is the finishing school of a very large majority of the boys and girls. Since so many never get into the high school it seems that some form of vocational work should be begun, probably about the seventh or eighth grade.

TABLE I.

TOWN	GRADES								Freshman High S.	Sophomore High S.	Junior High S	Senior High S.	Post Graduate
	1	2	3	4	5	6	7	8	9	10	11	12	
Canton	328	257	272	309	207	201	163	120	119	50	40	41	5
Monmouth	241	158	133	153	163	130	134	144	137	133	64	58	1
Beardstown	212	134	167	146	152	112	107	86	79	50	37	27	
Rock Island	489	496	391	394	348	317	271	271	163	148	120	70	
Moline	412	396	384	374	359	359	302	288	170	85	95	68	
Kewanee	315	273	257	233	234	203	125	182	116	76	64	46	7
Jacksonville	253	216	202	224	185	159	169	130	124	108	74	48	
Clinton	169	138	165	147	116	113	102	61	104	38	39	35	4
Galesburg	498	364	350	314	357	308	287	244	242	244	168	120	
Mattoon	405	278	303	245	275	191	138	112	102	52	35	40	
Champaign	292	234	214	248	174	210	187	139	137	128	57	65	
Decatur	703	642	683	671	618	538	499	331	171	150	133	128	2
Pekin	333	258	233	236	190	167	155	117	80	52	36	30	
Quincy	598	527	500	450	425	442	285	268	160	150	100	90	
Totals	5248	4371	4254	4144	3803	3450	2924	2493	1904	1464	1062	866	19

Table II shows a total of 36,002 pupils in the fourteen systems, of which number 30,687 or 85.2 per cent are in the eight grades, and 5316 or 14.7 per cent are in the high school. The enrolment in the high school in these cities varies from 10.5 per cent the lowest, to 23.8 per cent the highest. The average enrolment in the high school is 14.7 per cent.

A closer examination of the table shows that the highest per cent of high school enrolment is found in the college cities—Monmouth, Galesburg, Jacksonville and Champaign, the average for these four cities being 21.4 per cent. Decatur is an exception but the college here has been more recently established than in the

TABLE II.

	Total Enrolment	Total in Grades	Per cent in Grades	Total in H. S.	Per cent in H. S.
Canton	2,112	1,857	88.0	255	12.0
Monmouth	1,649	1,256	70.2	393	23.8
Beardstown	1,309	1,116	84.6	193	14.7
Rock Island	3,478	2,977	85.5	501	14.3
Moline	3,292	2,874	87.3	418	12.7
Kewanee	2,131	1,822	85.9	309	14.1
Jacksonville	1,892	1,538	81.2	354	19.2
Clinton	1,231	1,011	82.1	220	17.6
Galesburg	3,496	2,722	77.9	774	22.1
Mattoon	2,176	1,947	89.5	229	10.5
Champaign	2,085	1,698	81.0	387	20.9
Decatur	5,269	4,685	89.1	584	11.0
Pekin	1,887	1,689	89.5	198	10.5
Quincy	3,995	3,495	87.4	500	12.6
Totals	36,002	30,687	85.2	5315	14.7

four cities above mentioned. The lowest per cent of enrolment in the high school is found in the manufacturing cities, the average for these being 13.2 per cent.

The relation of the spirit of the community to the high school as reflected in these returns is very significant and suggestive. In the college city imbued as it is with the literary spirit, the high school as organized attracts more children than the high school in the city which is dominated by the manufacturing and commercial spirit. It might be that a revision of the high school course in the manufacturing centers to harmonize with the vocational interests of the communities would bring about a larger enrolment and thereby make it of greater service to the communities.

Table III gives the number and per cent of children in the first six grades as contrasted with the number and per cent in the last six. The summary shows a total of 25,270 pupils or 70.1 per cent in the first six grades and 10,713 or 29.9 per cent in the last six. (This does not include the 19 post graduates.) Again we notice in the four college cities (Monmouth, Galesburg, Jacksonville and Champaign) the percentage of enrolment is

TABLE III.

Town	Total Enrolment	(First 6 grades)		(Last 6 grades)	
		Number Enrolled	Percent of Total	Number Enrolled	Percent of Total
Canton	2,112	1,574	74.5	533	25.5
Monmouth	1,649	978	59.3	670	40.7
Beardstown	1,309	923	71.2	386	28.8
Rock Island	3,478	2,435	70.0	1,043	30.0
Moline	3,292	2,284	69.4	1,008	30.6
Kewanee	2,131	1,515	71.0	609	29.0
Jacksonville	1,892	1,239	65.4	653	34.6
Clinton	1,231	848	68.9	379	31.1
Galesburg	3,496	2,191	62.6	1,305	37.4
Mattoon	2,176	1,697	77.9	479	22.1
Champaign	2,085	1,372	65.7	713	34.3
Decatur	5,269	3,855	73.1	1,412	26.9
Pekin	1,887	1,417	75.0	470	25.0
Quincy	3,995	2,942	73.6	1,053	26.4
Total	36,002	25,270	70.1	10,713	29.9

larger in the last six grades than it is in the other cities. The average for these four cities is 36.7 per cent, while the average of the remainder is 27.5 per cent. This further emphasizes the fact that in these college cities there seems to be a better adjustment than elsewhere of the schools to meet local conditions. Other factors may enter into this,—probably several,—but a reorganization of courses in the grammar and high schools to meet existing local conditions would probably increase the attendance and thereby promote the greater usefulness of the schools.

A CASE FROM THE INDIANA UNIVERSITY CLINIC.

By Mary Rogers, M.A.,
Indiana University, Bloomington, Ind.

Royce G——— came into the Orthogenics Clinic of Indiana University the latter part of September, 1911, and has attended the school department and clinic daily for six months. He is the third son and sixth child of prosperous American farmers, who are ambitious for him to learn "as our other children have done." Royce was fifteen years old February 28, 1912; had attended a village primary school for six years, with a very good record of attendance, but he had not been regularly enrolled for the past two years. At the age of one month he had severe spasms with whooping cough and measles; was a delicate baby, and was very slow in learning to walk and talk. He has had no other sickness except tonsilitis occasionally, and the minor ailments of childhood. He has had excellent care and good training; is well mannered, willing and obedient; but is listless, without energy, lacking in those qualities which make a boy "a real live boy." He is physically about ten years old, undeveloped, small-featured, a pretty, docile lad, deliberate in movement, with the mind approximately of a seven-year-old child.

The anxiety of the parents did not result in any definite measure for improvement until August, 1911, when they took Royce to the clinic in Indianapolis, and then moved to Bloomington in September to put him in care of the clinic teachers and laboratory assistants of the University Orthogenics Department.

When Royce came into the clinic he could not read or write. He could spell orally a number of three and four letter words, could count orally to forty-nine, but could not recognize figures except one and two. He expressed himself well, using for the most part correct grammar and a fair vocabulary.

It was seen at once that his eyes were defective. Upon examination it was found that both eyes were affected by farsightedness and the left one by astigmatism. There was also a muscular imbalance of the external and internal recti. He was fitted with spectacles for the visual defects, with hopes that the muscular defect would be improved by the more correct vision. His nose was found to be affected and an operation was performed. Each inferior turbinated bone was dissected, so that breathing was made easier. The septum is yet to be straightened.

In December, 1911, Royce was examined according to the Binet-Simon scale for measuring intelligence,[1] with the following results:

Answered all questions to age of five years.+[2]

Age 5.

16. The boxes of three different weights, ten trials in lifting and telling the heavier,

RECORD

65–62.5 gr.....	Same....	S	R	R	R	R	R	R	R	W
130–125 gr.....	Wrong...	W	R	W	R	W	R	W	W	W
260–250 gr.....	Right...	W	W	R	W	R	W	W	W	R

Right, 14, 46 2-3 per cent.
Wrong, 16, 53 1-3 per cent.

17. Drawing of square. +

18. Two triangular pieces of rectangular visiting card to be put together like one given. + (3½ minutes.)

19. Count four pennies. +

Age 6.

20. Tests of right and left.
    Point with right hand. —
    Touch left ear. +
    Point to left eye. —
    Raise left arm. +
    Raise right leg. —
    Raise right arm. —
    Raise left leg. —

21. Repeat sentences of sixteen syllables. +

22. Aesthetic sense of the pretty and ugly faces as shown in chart. +

23. Definitions of familiar objects. +
    "A fork's to eat with."
    "It's a chair to set on."
    "A horse is to ride on."
    "A house is to live in."
    "Mamma is a woman."
    What does mamma do? "Cook."

[1] THE PSYCHOLOGICAL CLINIC, Vol. 5, No. 7, Dec. 15, 1911.

[2] + = passed.
— = failed.

24. Execution of triple order given simultaneously. —
25. Age. +
26. Is it morning or afternoon? +

Age 7.

27. Missing parts of body, as given in chart pictures.
    1. "Feet and hands." —
    2. "Mouth and nose." —
    3. "Nothing." —
    4. "Nobody; no hair, no eyes." —
28. Number of fingers on each and both hands.
    "Ten on each hand." —
    "Fifteen altogether." —

After carefully counting: "Ten altogether," but he did not realize the previous mistake.

29. Write from copy. —
30. Draw diamond. —
31. Repeat five digits: +
    87654
    43892
    76821
    48753
32. Description of actions and scenes of pictures in sentences instead of disconnected words. +
33. Count aloud thirteen pennies. +
34. Show penny, quarter, dime and nickel. +

Age 8.

35. THREE HOUSES BURNED.

New York, September 5th. A fire last night burned three houses in Water Street. It took some time to put it out. The loss was fifty thousand dollars, and seventeen families lost their homes. In saving a girl who was asleep in a bed, a fireman was burned on the hands.

(This story was read to him.)

"They found a girl on the bed and firemen saved her. They lost fifteen dollars."

36. Value of stamps. —
37. Naming colors: red, yellow, green, blue.

Red	Yellow	Green	Blue
— (green)	+	— (red)	+
+	+	+	+

38. Count backward from twenty to naught. —

39. Sentence written from dictation. —

40. Differences between: paper and cloth; butterfly and fly; wood and glass; knife and fork; sugar and salt.

1. "They spin cloth from flax and don't spin paper from flax."
2. "A butterfly sucks honey out of flowers and fly just flies around the house."
3. "Glass will break and you chop wood."
4. "A knife's sharp and fork, you stick a fork in pickles and get them. With a knife you don't. You cut pickles with a knife."
5. "Sugar's sweet and salt, you put salt on potatoes."

Age 9.

All tests minus.

Age 10.

47. Names of months. —

48. Denomination of money. 1. + 2. —

49. Sentence using three given words: boy, ball, river; girl, dollar, lake.

"The boy caught the ball and throwed it into the river."

"The girl found a dollar in a lake."

50. Questions of reasoning.

What should you do—

(1) When you miss a train?
(2) When a friend hits you without meaning to?
(3) When you break something that belongs to somebody else?
(4) When you are on your way to school and find it is later than usual?
(5) Before you take part in something important?
(6) What should you answer when asked to say what you think about some one you don't know very well?
(7) Why should we forgive a wrong done by some one when he is angry more quickly than when he is not angry?
(8) Why should you make up your mind about a person by his actions instead of by his words?

(1) "Wait for another."
(2) No answer.
(3) "Tell him you didn't aim to."
(4) "Run."
(5) No answer.
(6) "I think he is all right."
(7) "Tell him to quit."
(8) "'Cause you see him."

50a. Six digits repeated. —

Age 11.

51-53. —

54. Meaning of justice, charity, kindness.
Justice—"Good."
Charity—"Town."
Kindness—"Be good: be kind to anybody."

55. Sentence with the words out of place. —

Age 12.

56. Seven digits repeated. —

57. Meaning of rhyme. —

58. Repeat twenty-six syllable sentence. +

59. (1) A girl who was walking in the woods in a park, saw something hanging from a branch of a tree that made her so much afraid that she ran to the nearest policeman, and told him what she had seen. What do you think she saw?

(2) My neighbor has been having strange visitors. First came a doctor, then a lawyer and then a preacher. Why did these three go to this house the one after the other? What happened there?

(1) "Bear."
(2) "Somebody sick, preacher and lawyer going to see them."

Age 13.

All questions minus.

The form board record was made during the fall term, records being kept of one hundred and twenty trials for fourteen days, extending over a period of thirty-one days. Table I shows each record, the mean and the mean variation of each day and of corresponding trials from time to time. The dotted lines indicate additional trials interrupting the practice curve by the turning of the board in various ways: *i.e.* end for end, side for

side, etc. Six of the additional records (forty-three trials) were kept (table II). It is interesting to note that the best speed was recorded in one of these trials (fifth trial, Dec. 7).

TABLE I.

											M.	M.V.
Nov. 21.....	36	38	44	38	45						40.2	3.4
Nov. 22.....	32	27	28	25	26	30	24	26	23	21	26.2	2.4
Nov. 23.....	32	30	25	28	32	27	31	30	28	30	29.3	1.8
Nov. 24.....	15	18	20	14	20	18	14	15	19	18	17.1	2
Nov. 27.....	26	23	26	17	17	17	19	13	15	17	19	3.6
Dec. 4.....	25	21	30	20	18						22.8	3.8
Dec. 5.....	22	20	16	23	21	17	18	25	19	18	19.9	2.3
Dec. 6.....	25	16	21	15	17						18.8	3.4
Dec. 7.....	25	21	15	13	16	15	15	16	12	12	16	2.8
Dec. 13.....	16	17	20	15	14						16.4	1.7
Dec. 18.....	15	14	12	20	18	16	18	20	15	13	16.1	2.3
Dec. 19.....	16	13	18	15	17	16	19	15	17	11	15.7	1.8
Dec. 20.....	20	19	14	18	12	15	15	16	14	15	15.8	2
Dec. 21.....	13	17	14	18	11	12	17	14	14	12	14.2	1.9
M.....	22.7	21	21.6	19.9	20.3	18.3	19	19	17.6	16.7		
M. V.....	5.9	4.9	6.5	4.9	6.1	3	3.4	5	3.8	4.1		

In the school department Royce has had daily instruction in the rudimentary branches, manual training and physical training. The results of six months are:

He cannot yet read even the simplest sentences in the primer. He knows all the letters and many single words, in fact, most of the primer words, but when the book is placed before him, he

fails entirely. The storytelling method was used for some time, trying to find in just what kind of stories he might take an interest. He would listen to the reading or telling of the story, occasionally making an intelligent comment, but for the most part remaining silent. He never remembered the next day what we had talked about, nor, if the story were left unfinished, did he ask for the remainder of it. He had two stories which he

TABLE II.

Board Turned.

Nov. 23.....	30	40	34	40	30	30	25	18	21	16	18	20
Nov. 27.....	40	27	29	39	32	35	37	26	35	29		
Dec. 4.....	19	15	17	20	21	35	30	33	32	30	20	
Dec. 6.....	18	15	14	15	15							
Dec. 7.....	14	16	16	11	10	11	12	13	12	20		
Dec. 13.....	20	18	20	17	11							

could tell, and always told one of them if he were asked to "tell the story." He cannot recognize figures, or count orally with accuracy beyond forty-nine.

In writing he has made much progress. He can write well from copy and can read, if he has time to spell out the words, what he has written. He has written one "story" of seven sentences, telling about their horse. He can be given a column of letters and writes words containing the given letters correctly and legibly without any suggestion or assistance.

c	cat	t	tom	b	boat
l	lame	s	see	f	fly
m	my	e	me	g	golf
d	dog	r	run	h	hat
a	may	k	kate	i	in

He does not associate in any way printed and written words.

He has added a number of words to his oral spelling list, and is very good in oral sentence work; is able to make intelligent sentences containing three given words, without any undue hesitation.

In physical training he has shown some improvement. There

has been a slight increase in chest measurement, in height, and in weight. He is stronger and has more ability to coördinate his movements.

In the manual training department, he has made under direct supervision and assistance in measurements, a towel rack, a trinket box, a sled, and a wheelbarrow. Occasionally he knows the use of the tools independently, but most of the time the closest supervision is required.

After the tests have been made in the clinic, a brief course of further treatment is outlined for each child. The "prescription" for Royce reads: "Practice in making the various association tests, in tests of coördination, in all physical training, with special stress on boxing, wrestling and games. *Wake the child up if possible.* Continue his writing and lead to printed letters, trying to interest him in the grouping of words in order to read. Attempt to teach him the numerals, as each letter of the alphabet has been taught. Arouse him to a continued interest. Above all, be patient and persistent. He has only just begun."

NEWS AND COMMENT.

Care of the Insane—A Contrast in Methods.

In the care of the insane we have certainly advanced far beyond the methods of the eighteenth century, when persons of disordered mind were locked up in prisons and chained to posts in underground cells for safe keeping. How much further we Americans have to progress before we come within reach of anything worth calling an ideal, we may learn from a paper by Dr. Frederick Peterson in *The Survey* for last week. Dr. Peterson is professor of psychiatry at Columbia University and ex-president of the New York State Commission in Lunacy. For many years he has been engaged in the struggle to improve New York asylums for the insane. What the conditions must be in these colossal and overcrowded institutions can be guessed at when Dr. Peterson says, "I have known of mattresses laid upon floors in hallways, bathrooms and even in toilet rooms to accommodate the overflowing wards. Exercise out of doors is apt to be taken at fixed hours in a march around the grounds, double file in columns of fifty to two hundred with attendants as guards at each end and along the sides. A few trusty patients are worked on the farm and about the grounds, and some make scrubbing brushes and pick hair for handicraft work. Some make beds and drag a heavy floor-polisher through the wards and corridors. But the great majority sit idle and listless in long lines throughout the wards the entire day."

From this discouraging prospect it is a relief to turn to the description of two remarkable colonies or villages for the insane which Dr. Peterson has visited. One is in France, at Vanves near Paris, founded a hundred years ago by Doctors Voisin and Falret. A park of sixty acres is divided into two parts,—one for women, the other for men, —by a farm in the middle. Many little cottages have been built, each with its own garden enclosed by tall hedges. Here the patient can be isolated not only from his old associations, but also from contact with other insane people.

The other colony is the charming village of Iwakura near Kyoto, Japan. About nine hundred years ago the temple and holy well of Iwakura became famous through the cure there of the Emperor's daughter who had suffered from melancholia. In 1889 the village consisted of 239 families, each receiving one or two insane patients "to share in the occupations of the household, which are chiefly out-of-door employment in fields, gardens and parks and some of the arts and crafts of the ordinary Japanese home." Dr. Peterson remarks upon the charm of the place, the simplicity of its architecture, the beauty of its gardens and woods, the airiness of the little houses, the exquisite cleanliness of everything, and best of all the delightful manners of the inhabitants. "No doubt we of the West," he concludes, "will some day be glad to copy this Japanese model when we finally awaken to how far we have drifted from an ideal system of care and treatment of the insane, with our immense, expensive and complicated machinery of mere support and custody." But with an unmistakable accent of regret he adds, "I believe such gentleness, kindness, patience and assiduous attention to the sick could be found nowhere else, for nowhere else exists a whole race of people who never scold, quarrel, or manifest impatience, but always turn a smiling face and extend a helping hand to one another."

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ASPECTS OF INFANT AND CHILD ORTHOGENESIS.[1]

BY J. E. WALLACE WALLIN, PH.D.,
Director Psychological Clinic, School of Education, University of Pittsburgh, Pa.

The mental and physical health of children is a national asset which the State is under obligation to preserve and develop, for the indefinite improvement of humanity and the cause of the young child are inseparably interwoven. The problem of infant mortality, therefore, cannot be viewed apart from the larger problem of race conservation; and in the final analysis the problem of race conservation involves not only race preservation but a two-fold process of human orthogenesis: first, a process of physical orthogenesis, or orthosomatics, by which I refer to any process through which malfunctioning physical organs may be made to function aright, or by means of which healthy organs may be continued at normal functioning, so that the physical organism may develop to its maximal potential; and secondly, a process of mental orthogenesis, or orthophrenics, by which I refer to any process, mental or physical, of righting any malfunctioning mental power, so that the mind may realize its highest developmental possibilities. On such a theory the immediate purpose of a constructive community program—and only such a program will prove genuinely efficacious—of race conservation or human orthogenesis, may be stated as irreducibly three-fold:

First, *salvation; i.e.* the salvation of every born babe, fit or unfit, from a premature grave. Perhaps it were better to follow the example of the Greeks, a nation of ancient eugenists, and allow the unfit, provided they could be infallibly diagnosed, to perish by exposing them to death. But this expedient can be dismissed at once, because the very thought is abhorrent to the twentieth century mind.

Secondly, *improvement; i.e.* the maximal uplift or upbuilding bodily and mental, of every surviving babe, whether fit or unfit,

[1] Read before the American Association for Study and Prevention of Infant Mortality at the annual meeting in Cleveland, Ohio, October 3, 1912.

so that it may reach its maximal potential of social efficiency. The duty to preserve the unfit babe, once it is born, implies the duty to provide it with that nurture and protection which will bring it to its highest estate.

Thirdly, *elimination; i.e.* the eradication of the social misfits, not by the impossible expedient of enforced selective euthanasia, chloroforming or infanticide, but by the reduction of the birth rate of the unfit stock, and the increase of the birth rate of normal, healthy babies.

If the immediate or ultimate aim of the infant mortality crusade cannot be reduced beyond the above triple minimum, it is evident that a scheme of constructive planning must include remedial, corrective and preventive work, by the control of environmental and hereditary factors. While much of the conflict between the groups of environmental and hereditary infant welfare workers is due to the paucity of demonstrated facts in this field, which enables one group to attribute all or nearly all the blame for infant mortality, or for racial depopulation and degeneracy, to environment, while the other group just as confidently holds heredity responsible;[2] yet it is probably true that the greater part of the controversy is due to one-sided views as to the basal aims to be realized, and accordingly the methods to be employed in an infant mortality crusade. On the one hand, there are some euthenists who limit the legitimate scope of the work to the saving of life from premature extinction, and who underrate, if they do not entirely neglect, a program of subsequent diagnosis, care and training; while on the other hand there are those who admit that a follow-up program of orthogenic reconstruction undeniably possesses value for the individual, but who insist that it has no beneficent influence on race improvement, that permanent race improvement can result only from eugenical breeding, and that environment is of minor importance. The student of orthogenics, however, regards it as impossible of practical achievement and fatal to the realization of the highest orthogenic results in the work of race reconstruction, to attempt to divorce the above aims, to neglect one at the expense of either of the other two, and to create a wide gulf between the euthenical and eugenical factors of control.

[2] Few of the factors productive of infant mortality have been studied under thoroughly satisfactory conditions of analytical control; hence the value of many of the statistical findings is questionable. Yet these discrepant findings are constantly used in support of the most divergent claims. There is great need of genuine scientific research in this field. Too much of it is pseudo-scientific.

In the time that remains I propose to present a brief statement of the points of view, claims, evidence and the measures advocated by the two schools of infant conservationist workers, and to offer a few suggestions for a fairly comprehensive program of euthenical and eugenical work.

EUTHENICS.

The euthenist claims that the major percentage of infant deaths are due to a maladjusted environment, or to detrimental factors which are under environmental control. He tells us:

> That the vast majority (some say 90 per cent) of babies are well born;
>
> That adverse environmental influences are not more destructive of the biologically inapt than the biologically apt infant;
>
> That since the hereditary factors exert a minor influence during early life, the eugenically fit will succumb during infancy quite as readily as the eugenically unfit;
>
> That most infants die of preventable digestive disorders caused by bad feeding, bad food, food infected particularly by the house fly, or by injurious drugs or beverages, and of preventable respiratory diseases, caused by bad air and dirt; and
>
> That in the final analysis, therefore, the causes of infant morbidity and mortality are chiefly sociological, psychological and economic, a combination of ignorance, carelessness, indifference, neglect, filth, vice and poverty.

Thus it was found in a study of 44,226 deaths under age one, in New York, Philadelphia, Boston and Chicago that acute gastro-intestinal disorders were responsible for 28 per cent, and acute respiratory diseases for 18.5 per cent of the deaths (L. E. Holt); while the corresponding mortality figures in England and Wales during the period from 1892 to 1901 were 57.5 per cent and 25.3 per cent, respectively. Of the 49,000 infants who die under age two every year in the United States from cholera infantum, it is maintained that the majority are poisoned by flies.

Moreover, the euthenist contends that the real causes are often mistakenly or fraudulently reported. Thus premature births or still births which constitute about 25 per cent of the mortality figures both in England and America, and which are alleged to be due to impairment of biological capital or neuropathic taint, are often due to abortion produced by arbortifacients or criminal

operations, or to infanticide, or to overwork and starvation of the mothers (as they are frequently found among factory mothers). Likewise in some cases in which the cause is reported as parental alcoholism, the inebriety is only indirectly responsible for the deaths. Often the real cause is overlaying—the crushing or smothering of the infant by the narcotized parent. This circumstance seems to explain why so many infants die between Saturday night and Sunday morning—42 per cent of 461 cases reported in an English study.

With the emphasis placed on such factors as the above, it is evident that the euthenist will look to the control of environmental factors for his orthogenic measures. Among the control measures which may be mentioned are the following:

The complete extermination of the house fly;

The establishment of scientific standards of ante- and post-natal maternity and infancy nurture and care;

Relieving mothers from excessive toil, hunger, or emotional tension before, during and following the period of confinement, by the establishment of expectant refuges, lying-in hospitals or maternity nurseries, or nursing mothers' restaurants, where wholesome food may be dispensed to the mother free of charge or at small expense, or by the legislative pensioning or endowment of motherhood, or by the issuing of a form of motherhood insurance;

The compulsory registration and periodical inspection of baby farms, or foundling homes;

The licensing and supervision of foster mothers;

The establishing of medically supervised milk stations or social consultation centers, where properly modified, pasteurized or sterilized milk may be supplied, and where mothers may receive instruction and demonstrations in the scientific care of infants; or the establishment of community educational health centers of the Milwaukee type, for the training of mothers, nurses, social workers, midwives[8] and doctors in infant feeding, care and hygiene, and in home and neighborhood sanitation;

The establishing of public summer baby tents;

The development of measures to substitute breast feeding for bottle feeding;

The legal imposition of fines on mothers who can but will not nurse their sickly babies;

The substitution by legal enactment of bottle teats for bottle tubes;

[8] Our first municipal school for midwives was established in New York in 1911.

The frequent systematic inspection of the mouths of young children adequately to control the "disease of the people," dental caries;

The after-care or supervision of sick children during convalescence;

The expert community supervision of infants until they statutorily come under the supervision of school boards;

The annual examination of pupils in the schools by medical and psychological inspectors, with a view to the discovery and correction of physical disabilities and mental deviations or abnormalities, whether developed or latent;[4]

The community supervision, regulation and socialization of urban recreation;

The education of the youths of both sexes in sex hygiene; and

The education of girls and young wives for motherhood in little-mothers' classes or in continuation home schools.

Concerning the desirability of instituting systematic, organized plans for putting into effect some of the above measures, there ought to be little difference of opinion. There is, at least, little reason to doubt the efficacy of many of these measures. To cite merely four instances: by the employment of various corrective, remedial and preventive measures in New York City the infant death rate between 1881 and 1902 was reduced 62 per cent; by providing infant supervision by means of district nurses the mortality in New York City last year was reduced to 1.4 per cent among 16,987 supervised babies (the cost of the supervision amounted to about 50 cents per child per month—the same as in Milwaukee); by arranging to give mothers a ten-day rest period before confinement 10 per cent was added to the weight of infants in Paris; and by the simple expedient of feeding infants from the breast instead of from the bottle the mortality in various cities has been reduced in amounts varying from 50 per cent to 15 per cent.

Obviously, the first efforts of any organized plan of human conservation should aim so to environ every babe that it may obtain a decent fighting chance for survival beyond the cradle. By the proper control of environmental factors I believe that we can eradicate 75 per cent of infant mortality, provided the work

[4] The last two measures are partly in practical force in New York City (and Boston), where a Division of Child Hygiene, of the Department of Health, has been established under municipal control with the duty of supervising the health of children from birth to the legal working age. It is some such community organization as this for which I shall plead, though I prefer to have it established as a part of the public school system, with various additions to its functions.

is organized on a community basis instead of being left to individual initiative or direction. Individual effort because of ignorance, caprice, poverty or inefficiency, will mean desultory or worthless action, or no action at all. Nothing short of organized community action will enable us to eradicate the preventable mortality of infants. My first plea, therefore, is for the development of comprehensive plans on a community basis for *preserving* and *conserving* the *lives of infants.*

But I shall equally lay stress upon a second desideratum, namely the organization of community development supervision of the child during the *entire growth period.* That there is need of such supervision in this day of disintegrating homes there can be no doubt. The problem of the individual child only begins after the battles of the first years of life have been won, and after the child has become more or less emancipated from dependence on his mother or caretaker. The momentous period of individualization which now begins is fraught with grave perils at every turn. All along the child will have to cope with insidious destructive environmental influences which tend to abort, deflect or retard his normal development. Can we safely entrust the responsibility for normal development under modern urban conditions to the child or parent? Do not practically all children and most parents lack the requisite knowledge, insight and foresight? Is it not, therefore, the duty of the community or State to supplement the home care, and systematically to direct the child's development, so that he may come to a true knowledge and appreciation of the ideals which the State regards as essential to its perpetuity? Clearly it is in the interest of the State that the child be so safeguarded from injury and disease and so trained that he may reach his maximal physical, mental and moral potential, to the end that he may become a productive civic unit and not a social drag.

That the State has already assumed a paternalistic function toward her children is shown by the general establishment of compulsory systems of public day schools and special institutions, and by the more recent establishment of systems of school medical inspection. While I am of opinion that the public school systems are the community's logical agency for accomplishing the orthogenic work required by the infant as well as the child, neither the public schools nor the school medical inspection systems have as yet been adequately organized to carry out a satisfactory program of orthosomatic and orthophrenic work. The public schools

are making heroic attempts to adapt their machinery to the varying physical and mental needs of every pupil, but school officers and administrators have thus far failed to appreciate that the mental and educational problems connected with the mentally exceptional child cannot properly be handled until the direction of the work is taken out of the hands of the dilettanti and placed in the hands of psycho-educational experts, who are not only skilled in methods of psycho-clinical diagnosis, but who are also capable of functioning as consulting experts in the various branches of corrective pedagogy. Likewise school medical inspection has failed to deliver, partly (1) because many school medical inspectors have no specialized training in the diagnosis of the physical defects of children, and lack expert knowledge of school hygiene and sanitation and the prevention of defects and disorders; partly (2) because the work is confined almost entirely to mere inspection and tabulation of defects instead of including corrective treatment, with the result that in many schools the percentage of pupils who actually have their handicaps removed varies from 5 to 25 per cent;[5] and partly (3) because emphasis is placed almost entirely on the discovery and correction of existent defects, instead of on the discovery and prevention of the causes of the defects (that is, the conditions which produce adenoids, enlarged tonsils, carious teeth, etc.).

In order that the schools may serve as an organized agency for carrying out an effective program of orthogenic work for every child of school age,[6] the following plan of work is proposed:

1. Every child on entering school should be given an expert examination for the detection of latent or manifest abnormalities of mental, moral and physical development, the mental examination to be made by a skilled clinical psychologist who is an expert in psycho-clinical methods and in the differential, corrective pedagogy adapted to various types of mental deviates;[7] and the physical examination to be made by a physician specially

[5] In a Chicago school the principal told me that in one of her investigations she found that only 5 per cent of the defective pupils had taken any measures to have their defects removed. It is said that in New York last year, as a result of visits to the pupils' homes by inspectors and nurses, 86 per cent of the defects discovered were treated.

[6] The schools may well care for the child from the time of birth, in the department of orthogenics which I propose. This would entail the employment of nurses, who would devote themselves to the care of babies and young children. All the records would be filed in the one central school bureau.

[7] Neither the introspective-experimental psychologists nor the average medical practitioners have the qualifications for this type of diagnosis. See J. E. Wallace Wallin, Clinical Psychology: What it is and what it is not. *Science*, 36: 1912.

trained in the detection of the diseases, the physical defects, and physico-developmental abnormalities of childhood.

2. Children found in these examinations to be mentally or physically deviating should immediately receive appropriate orthogenic treatment, whether this be hygienic, corrective or preventive, or whether it be physiological, pedagogical or psychological. By thus securing diagnosis and treatment while the child's brain is plastic we shall be able to accomplish the highest orthogenic results. We shall be able to prevent the formation of injurious pedagogical habits which result from the malfunctioning of the psycho-physical organism and which, once established, are often hard to eradicate. To obtain maximal results, the child deviate must be classified early.

3. Specially trained teachers, and special classes or institutions should be provided for the mental and physical deviates. School medical and dental dispensaries should be established for the free treatment of all properly certified indigent cases. It is economic suicide for the State to pay for the education of pupils who are largely uneducable because of physical handicaps. To spend large sums of money in the discovery of physical handicaps without providing the machinery for the correction of defects is also economic suicide.

4. Physical training should be systematically required of every child during his entire school course. Health education must be given the same emphasis as mental education.

5. Children shown by the expert examinations and the results of special training, to be socially and mentally incompetent, should be segregated in colonies for permanent oversight. They should be sent to such institutions as soon as their incompetency is measurably certain, at least before they reach puberty. No mental incompetents should be permitted at large in society, unless the home situation is such as to insure adequate protective oversight for the child.

6. The medical and psychological work throughout should contemplate not only the discovery and correction of defects or deviations which interfere with normal development, but also the discovery and removal of the conditions, whatever their nature, which produce physical or mental disabilities. The keynote of the whole plan must be *prevention* rather than cure. The problem does not so much concern the excision of adenoids or enlarged tonsils, as the removal of the conditions which cause them.

There is not time to argue the practical efficacy of a com-

prehensive program of orthogenic work along the lines indicated above, but I wish briefly to refer to an experiment undertaken to discover whether or not the mental efficiency of a group of children actually could be raised by orthosomatic mouth treatment. There is great need for the scientific investigation of the mental effects of various physical disorders or defects, because the extravagant claims which are often made as to the marvellous mental improvement which follows the correction of physical defects are usually based on the casual and sympathetic observation of a few favorable cases and not on actual performances as determined by controlled objective measurements.

For some time it had been my desire to carry out a research of this kind, particularly in relation to the so-called "disease of the people," dental caries, in view of Osler's statement, "that there is not any one single thing more important in the whole range of hygiene than the hygiene of the mouth." The opportunity came during the academic year 1910-1911.

The subjects of the experiment were a squad of 27 girls and boys in Marion School, Cleveland, who were suffering from disorders of the teeth and gums and an unhygienic condition of the oral cavity. During the first few months of the experimental year these pupils had their teeth polished and repaired, and their gums hardened. They were taught how to brush their teeth and gums properly, and how to chew their food. At two sittings before treatment began they were given five psychological tests, namely: tests of capacity to memorize three-place digits, of rapidity of writing free word associates opposite supplied antecedents, of ability to add columns of ten one-place digits, to write antonyms opposite a series of supplied words, and to draw a stroke through the "A's" which were distributed promiscuously in successive lines of capitals. The medians of the scores in the two series of tests before treatment were used as the normal or comparative standards of performance. During the course of the treatment, and after its termination, these five tests, somewhat modified but nevertheless uniform in difficulty, were given under the same experimental conditions in four successive sittings. The difference between the median scores in the first two and the median scores in the last four sittings (or the last two may be used) thus represents the index of improvement.

The detailed results of this attempt to measure under controlled objective conditions the orthophrenic effects of operative

and hygienic dental treatment have been presented elsewhere.[8] Here the briefest summary must suffice.

The amounts of average improvement were as follows: in ability to memorize, 19 per cent; in spontaneous association, 42 per cent; in adding, 35 per cent; in associating antonyms, 129 per cent; and in the capacity to perceive, attend and react, as determined by the "A" test, 60 per cent. The median improvement for all tests thus amounts to 57 per cent, truly a significant gain. Even if it be conceded that only one-half of the gain is solely attributable to the heightened mental ability resulting from the physical improvement of the pupils, the gain would still be very considerable. In corroboration of the mental improvement shown by the psychological tests may be mentioned the following facts. Most of the members of this experimental squad were pedagogically retarded in their school work from one to four years. But during the experimental year only one failed of promotion, while six completed 38 weeks of work in 24 weeks, and one boy did two years of work in one year. During the preceding year many of the pupils were quite irregular in their attendance, owing to toothache, bodily indispositions or distaste for school work, and five pupils were truants. During the experimental year the truancy disappeared, while certain so-called incorrigible boys became quite manageable.

No phase of the modern child reclamation movement merits deeper scientific study than the relation of normal physical, mental and pedagogical growth and development to a comprehensive, broadly conceived community plan of physical and mental orthogenesis. One of the pregnant conclusions from the above research is this: that no community can hope to realize proper dividends upon its school investments unless the pupils are first made so physically and mentally fit that they can profit from the instruction and training. What sense is there in spending a lavish amount of money trying to teach pupils whose capacity for development is partly or entirely blocked by various disabilities? That is an economic question. Our present policy in many cases seems like economic suicide. What *right* have we to force the child to plod along on a road to knowledge which has been rendered impassable because of uncorrected incapacities? That is a humanitarian or moral question. Moreover, what profit is there in permitting the child to impair the racial vigor by this sort of

[8] J. E. Wallace Wallin, Experimental Oral Euthenics, *Dental Cosmos*, 54: 1912, pp. 404 ff, and 545 ff. *Also*, Experimental Oral Orthogenics, *The Journal of Philosophy, Psychology and Scientific Methods*, 9: 1912, 290 ff.

neglect? That is a eugenical question. I incline to the unorthodox view that there is a eugenical side to euthenical reclamation work, for may it not be possible by the orthosomatic and orthophrenic work suggested above gradually to elevate the vital index of the growing generation and thus eventually to improve the inheritable qualities of the race? Will not a slow orthogenic transformation of the somatic protoplasm gradually produce a beneficent transformation of the germinal protoplasm, just as the continuous indulgence in alcohol is thought by some investigators to produce a gradual deterioration of the reproductive cells?

Whether or not this view is scientifically justifiable, I want specially to emphasize the following vital eugenical aspect of the above community plan of school orthogenic work, namely: the truth that the practical efficacy of applied eugenics largely depends on the systematic study of children in the schools, so that all eugenically unfit children may be identified during the *pre-pubescent years.* Only through systematic coöperative child study on the part of teacher, educator, psychologist, biologist and physician will we be enabled to distinguish with certainty between the transmissible and therefore eugenically important qualities and the non-heritable and therefore eugenically irrelevant qualities, so that our eugenic duty toward a given child may be patent certainly not later than at the dawn of adolescence. The urgent need for improved differential eugenical diagnoses will appear presently. But before proceeding further let us summarize the argument of the preceding pages:

It is the inalienable right of every child born into the world, whether fit or unfit, to receive such parental and community care as shall remedy or prevent sickness and disease, and as shall correct or mitigate constitutional or acquired physical defects and mental and moral disabilities, to the end that he may be able to appropriate in maximal degree the instruction and training which the community bestows upon him, and to the end that he may become a fit progenitor of healthy offspring.

But if this proposition is true, is it not equally true that it is the inalienable right of every child to be *well born,* to be saved from impending death, premature decrepitude or inaptitude *before* instead of after birth? Otherwise stated, is it not the inalienable right of the *State* to demand that no socially unfit stock must be born, and to enforce that demand by all the police power which it possesses? To these questions the eugenist makes affirmative reply.

Eugenics.

The eugenist affirms that human beings, like the lower animals, breed true. Like produces like, fit answereth unto fit, unfit follows unfit. Therefore the problem of human orthogenics is fundamentally a problem of breeding viable, untainted infants by means of eugenically fit matings.

If the euthenist has unbounded faith in the efficacy of the environment, the eugenist has a no less religious faith in his heredity formularies. We are told:

That the influence of the environment is less than one-fifth, nay less than one-tenth, that of heredity (Karl Pearson);

That most infant deaths are due to lack of biological capital;

That 30 per cent of infant mortality is due to inherited syphilis alone;

That the congenitally syphilitic child is far more prone to contract the various contagious diseases than the non-syphilitic;

That constitutional inferiority always spells increased susceptibility to disease;

That more than one-third of tubercular cases in institutions come from tubercular families, which it is assumed are tubercular because of inherited tubercular diathesis;

That from 60 to 90 per cent (Tredgold) of the amented feeble-minded are hereditary cases, and that a large percentage of the insane (16 per cent, Koch), and epileptic (56 per cent, Barr, and Spratling), and criminals and social offenders are the victims of heredity;

That alcohol is a veritable race poison, producing both individual and racial degeneracy;

That parental alcoholism causes atrophy or pathological changes of the reproductive mechanism;

That it is responsible for 5 to 10 per cent of feeble-mindedness, from 10 to 20 per cent of epilepsy, 30 per cent of male insanity, and a large percentage of pedagogical backwardness in school children, for a large percentage of mortality soon after birth, for infantilism, deformities, nervous disorders, deficiencies of weight, and disease in children, and for the inability of mothers to nurse their offspring (Bunge found that only 2.1 per cent of daughters of confirmed drunkards were able to suckle their infants);

That female inebriety particularly is a prolific cause of the ruin of infant life, inebriety in the expectant mother being responsible for a large percentage of sterility, abortion, miscarriages, premature births and still births (Latenen: only 42 per cent of 600 children of 120 female inebriates lived

more than two years; 55.8 per cent lived less than two years. Lonnett: of 107 English women dying of alcoholism before 29 years old, 8 bore no children, 99 bore 6 delicate and deformed children; but 29 vigorous children were born before the mothers became alcoholic);

That the death rate is greatest for the later pregnancies of maternal inebriates (33.7 per cent of deaths among first born; 72 per cent, among the sixth to the tenth born; still births among first born, 6.2 per cent; among last born, 17.2 per cent);

That increase in national sobriety has actually been attended with a decrease in infant mortality (English study; Latenen's study of 20,000 from 5846 families indicated that the number of deaths and miscarriages decreased as the amount of alcohol consumed decreased);

But that both the number of premature and still births and the number of infants who barely escape these conditions are increasing in civilized countries (Kaye, whose finding is based on English statistics), while likewise our neuropathic stock is increasing faster than the general population, so that the army of dependents, defectives and delinquents threatens to engulf our civilization (one medical alarmist, Kellogg, predicts that in the year 2012 no children at all will be born!);

That the preservation of unfit babies by euthenical means materially augments the increase of the degenerates;

That state systems of granting annual bonuses or allowances for each child born are pernicious, because only that part of the population which is barely living above the poverty line would take advantage of them, and this would tend to augment the ranks of the lower social strata;

That material prosperity, eugenically considered, is no panacea for racial degeneracy, because it tends to produce alcoholism, premature debauchery and syphilis (as shown by a study of prosperity in the wine-producing canton of Luchon, France. The schools have received a crop of dullards seven years after good wine years);

That the potential limits of every individual's level of functioning are fairly definitely fixed by heredity; that since the limits cannot be radically altered or lifted by nurture or training, each individual will tend to achieve his maximal success only in so far as he follows his initial aptitudes, propensities or bent; and that therefore the improvement of human capacity is primarily a matter of eugenical mating and only secondarily a matter of teaching and training.

What now are the measures which are proposed by the eugenist for elevating the standard of parenthood? The strictly eugenical measures have to do either with the regulation of reproduction or mating, *i.e.* scientific breeding; or with the protection of the germ plasm from injury or deterioration (and possibly with the safeguarding of the foetus from injury, starvation, or infection). The specific measures most frequently advocated are the enforced limitation of marriages to the eugenically fit, as determined by statutorily required physical and mental examinations of applicants for marriage certificates; the compulsory sterilization, under legal safeguards, of all persons adjudged socially incompetent; the quarantining of all persons who are carriers of infectious social diseases; and the permanent sequestration in state colonies of all the epileptic, insane and feeble-minded, chronic inebriates, syphilitics, rapists and sexual perverts.

The student of orthogenics finds himself in sympathetic accord with the fundamental aims of the eugenic movement. In our efforts to fashion a race of human thoroughbreds nothing less than the eugenical ideal is wholly satisfying. Moreover, we have a right to judge any proposed euthenical measure in the light of the eugenical ideal. Any euthenical measure which is manifestly anti-eugenical should not be encouraged. Legislators may well pause before favorably considering those measures now being advocated in various civilized nations which are threatened with depopulation. The probable immediate effect of paying bounties out of the public treasury to mothers for the support of babies would be the increase of neuropathic stock, so that society would ultimately succumb under the ever increasing burden. But while the eugenical conception is impregnable as an ideal, the student who is seriously interested in the cause of eugenics must recognize that there are almost insuperable difficulties in the way of the effective application of its principles, and that progress in the work will depend upon the measure in which these difficulties are successfully overcome. We may group these difficulties into four classes:

1. *Psychological and sociological difficulties.*

Effective reform of human practices is scarcely possible without the aid of the emotional forces of human nature. But man's emotional development has not kept pace with his intellectual progress. Emotionally human nature is very much the same today as it was in the days of primitive man. This is explainable

on the assumption that the emotions are merely the subjective side of the instincts. Therefore, in trying to transform the sex life of the race we are obliged to deal with a set of emotions which are connected with one of the three oldest and most basal instincts of the race, namely the sexual instinct. Now it is at least supremely difficult, if not utterly impossible, suddenly to change instinctive racial reactions by mere instruction, demonstration, exhortation or legal enactment. An instinct has become deeply imbedded in the very fabric of the psycho-biological life of the individual as a result of age-long racial conflicts, by slow and painful processes of elimination and survival. Therefore, instincts have acquired a degree of stability, pertinacity and emotional intensity which renders them almost invulnerable to merely rational appeal, and which leaves but one way to transform them, namely the evolutionary method of gradual elimination and survival.

To illustrate: as a result of thousands of years of painful tribal struggle and warfare those tribes were gradually selected for survival who abandoned the practice of consanguineous marriage and incestuous intercourse between near relatives. Through painful experience the inexorable truth was slowly forced into the consciousness of the race that such unions weakened the stamina of the tribe, and therefore must be rigorously interdicted. Not only did such practices arouse the disapproval, contempt and condemnation of the organization, but they gradually awakened in the individual a feeling of disgust which in time became instinctive. The intense repugnance which the normal mind to-day feels toward consanguineous or incestuous intercourse rests more upon an instinctive than a rational basis. The *taboo* pronounced on such unions as these is founded on the deepest psychic subsoil of the racial consciousness, and has become incorporated in the very habitudes, customs and traditions of the race, obtaining thereby a sanction which is more authoritative than that conferred by command or arbitrary legal enactment.

The eugenic problem would be easily solved if there existed a racial instinct of repulsion against anti-eugenical matings—if there were a universally instinctive *taboo* on marriages between the biologically unfit. It is a question whether such a feeling of disgust, instinctive in its elemental intensity, can be instilled into the consciousness of lovers by mere teaching, enlightenment, or prohibition. Sexual attraction is an instinctive psycho-biological phenomenon less subject to regulation by scientific or legal prescription, than by blind impulse, custom, tradition, or con-

vention. Most free matings will be determined by certain intangible secondary sexual characteristics, certain fetiches peculiar to each individual, while the restricted matings will be determined by the conventional requirements of social station and wealth—unless, indeed, the eugenic creed can be transformed into a vital national religion.

Just as there are deep seated psychological instincts or emotional forces which tend to frustrate the enforcement of eugenic marriages, so the racial instinct of sexual modesty will offer the hardest obstacle to the effective and universal enforcement of laws requiring health examinations before marriage licenses may legally be issued. Even if such laws were generally enacted, will not the forces of sex frequently overleap all legal restraints and defy prisons and chains?

In the same way, the chief obstacles to the legal enforcement of the practice of vasectomizing the unfit are of a psychological nature; various sentiments and prejudices, and man's instinctive recoil against any interference with the processes or impulses of nature. If it were possible to vasectomize the whole army of misfits, and to stop entirely the manufacture of alcohol throughout the earth, the problem of eugenics would be largely solved. The chief obstacle against the total elimination of the liquor curse, again, is also psychological: the instinct of appetite, and certain mental states which are induced by the consumption of narcotics.

Finally there are the maternal instinct and filial ties to thwart any effective plan of colonizing without exception all degenerates or eugenical misfits.

It has been necessary thus to emphasize the fact that there are certain psychological forces, certain instincts, emotions, customs, conventions and folk ways, which are anti-eugenic in nature, and which must be reckoned with in any well-conceived plan of eugenics. The fact that these eugenically hostile forces exist in the very citadel of humanity makes it all the more essential that the eugenist wage a relentless campaign for the increase and dissemination of verifiable and convincing knowledge of heredity, so that eugenic truths may lay hold on the deepest feelings and sentiments of the race and become in fact a national faith, tradition or religion. Then will it be possible to make eugenic enactments on the statute books genuinely effective.

2. *Administrative and legal difficulties.*

The adequate enforcement of eugenical measures in the present stage of civilization requires much governmental machinery.

But because of the facts which we have just considered, it is not probable that adequate laws can be secured, or can be enforced if secured. Public sentiment would not support the enormous legislative levies which would be needed to colonize the vast army of misfits (already in New York from one-fifth to one-seventh of the state revenues go to the support of the institutions for defectives); and the popular outcry, based on prejudice, blind emotion, impulse or instinct, against the sterilization of at least all those misfits who remained at large in society, would nullify the law. As a consequence a large number of degenerates would always be found in society polluting the race stream. Compulsory physical and mental examinations of all parties to marriage contracts would serve a useful eugenic purpose; but the laws would be powerless to prevent a man or woman from contracting, say, contagious venereal disease after the bill of health had been issued. After all, the problem is not so much to get proper laws enacted as to secure the public sentiment which will demand their enforcement. There is no remedy for these difficulties, except a campaign of discovery and diffusion of eugenic facts, so that the public conscience may eventually be stirred.

3. *Diagnostic difficulties.*

Our third obstacle is the lack of a reliable or infallible criterion of eugenical unfitness, or of anyone competent to pronounce infallibly on all but the obvious cases. Who is competent to decide whether or not a given individual possesses desirable or undesirable hereditable determiners? Who is able to say unequivocally that a given individual is eugenically defective and that he can only give issue to tainted progeny? Who can determine with scientific exactness that certain determiners are lacking in "X" and that the same determiners are likewise lacking in his intended consort? Who is able to determine whether a so-called normal person may not be the carrier of defective strains, just as healthy persons may be disease carriers, so that unions between such normals may be just as non-eugenical as unions of obvious degenerates? It must be confessed, I believe, that the gaps in our knowledge of the laws of human heredity, from the biological side are still deplorably wide. As far as concerns the psychological identification of mental defectives, our present technique enables us to locate the extreme types, but not the borderland cases. One of our best schemes of mental classification is the Binet-Simon scale. But after having personally used this scale almost daily for more than two years

in the study of the feeble-minded, epileptic, insane, juvenile delinquents and backward children, I am free to confess that while the great utility of the scale cannot be questioned, it is not by any means the marvellous, unerring machine which it is claimed to be by certain over-zealous exploiters, even for the purpose merely of measuring the degree of mental arrest. Nevertheless, with improved measuring scales of intellectual capacity, supplemented by the scales of personal, social, motor-industrial and pedagogical efficiency,[9] and by developmental and heredity charts, the difficulties pertaining to the accurate diagnosis of mental cases will probably not prove insuperable. The establishment of adequate, reliable mental development scales is a large task, which cannot be done within a reasonable time without liberal public or private subsidy. One of the reasons for supporting such work is the extreme feasibility of experimentation in heredo-psychology. In the psychological field it is easy to test and experiment on fit as well as unfit individuals, while in the biological field human heredity experimentation is almost impossible. This brings us to the statement of the final obstacle confronting applied eugenics, namely:

4. *Experimental difficulties.*

If it were possible to apply the principles of experimental genetics to human breeding as those principles are now applied to the breeding of domestic animals, many of the controverted problems could be brought to a fairly expeditious adjudication. Just because this seems impossible of achievement, the propagandist must beware lest he bring disrepute upon the eugenics movement by advocating precipitate, ill advised or premature action. There is danger that zeal may get the better of wisdom, and that state and national laws may be passed which we shall later come to rue. In the absence of experimental demonstration, who shall say that the laws of human heredity are Mendelian and not Galtonian in character? What warrant is there for affirming that such socially significant complex mental traits as honesty, courage, virtue, initiative, concentration, perseverance, intelligence, judgment, reasoning, kindness and loyalty are unit characters and are transmissible as simple determiners? Woods affirms that they do not behave as unit characters and are not transmissible as such. But it is just such mental characters as these that it is important to transmit, for fundamentally the difference between

[9] *Cf.* J. E. Wallace Wallin, Human Efficiency, *Pedagogical Seminary*, 1911, 74-84.

a social fit and misfit is a difference in mental qualities; the age of brute or muscular force has been superseded by the age of intellectual or mind force.

Since the important question, therefore, is to determine whether socially significant complex human mental traits are heritable, and since this cannot be directly determined for man by the method of experimental genetics, what is to be done? The following brief outline of both practical conservational and eugenical research work is suggested.

1. Conservational bureaus or agencies should be established on a community basis in the cities and commonwealths, for the purpose of scientifically supervising the health, growth, hygiene and educational development of the child from birth to the period of late adolescence. A community plan of this character has already been sketched in an earlier section of this paper. I incline to the opinion that the work should be organized in connection with the public school systems, not merely because this public agency is already in existence, nor because it would prevent the duplication of material plants, nor yet because the people have confidence in the public school systems; but because I believe that the integral function of the public schools is not only instruction or training but also the conservation of the mental, moral and physical health of the children entrusted to their care.

2. One of the specific functions of this bureau, or of some other organization, should be the *biographical charting* of all babies born into the world, or at least of all infants of presumptively degenerate stock. The biographical charts, on which the entries should be made shortly after birth, should contain such facts as the following: date, order, circumstances, condition, weight and height at birth; the mental and physical condition, eating and drinking habits, overwork and accidents of the mother before and at the time of birth; a record of the hereditary factors in the direct and indirect ancestral lines; a statement of the housing and environmental conditions. Later entries would indicate whether the child was breast or bottle fed, and for how long, and contain a record of his diseases, accidents, developmental retardations or accelerations, mental and physical peculiarities or abnormalities. This card, or a duplicate, might accompany the child to school, where it would be properly filed and where it would be supplemented by annual entries made by the teachers, the school nurse or social worker, the school psychologist and physician. These entries would show the child's physical and mental con-

dition, as determined by anthropometric, medical and psychological tests, and his pedagogical progress from year to year. The data thus secured (to be made available only to the officers of instruction, diagnosticians, and research workers) would not only be of value for the intelligent guidance, care, development and training of the child, but they would enable us to locate and diagnose more speedily and effectively the social incompetents, and also contribute material of great value to the science of human eugenics.

3. A number of specific medical, psychological, pedagogical and anthropometric investigations, because of their practicability and the light which they will shed on various eugenical factors, should be prosecuted on a large scale. For example: what is the difference in the rate of mental and physical development between children of alcoholized or caffeinized or narcotized parents and children of abstainers from alcohol and caffeine and tobacco? If there is a difference, does it appear during early childhood, during early adolescence, or later? Do the differences eventually disappear, so that both classes of children eventually reach their normal type, just as some species of animals whose development has been artificially or experimentally retarded later recover their losses?

Likewise, what is the relation between narcotized parentage and mental and physical defects, deformities and abnormalities, and arrested epiphyseal development in the offspring? To answer these questions extensive serial psychological, anthropometric, physiological and radiographic tests need to be made of children of alcoholized and non-alcoholized parentage.

A number of studies already made indicate that this is a fruitful field for protracted research. Thus in some of the special classes in London and Birmingham 40 per cent of the pupils are reported as having intemperate parents, while the corresponding percentage for pupils of the same age in the regular classes was only 6 per cent. Of like tenor is the reported fact that in some cantons in France the schools have been flooded with an army of laggards seven years after good wine years.

In an investigation carried out on the students of Murdoch Academy, in Utah, it appeared that the offspring of non-narcostimulant parents were superior to those of the stimulant parents in all of the 22 mental and physical traits examined; that as the amount of caffeine consumed daily was increased there was observed a progressive deterioration in the height, weight and bod-

ily condition of the offspring; that the mental and physical inferiority was increased when the parents used both coffee and tea, when they used tobacco, and particularly when they used alcohol also; 79 per cent of the narcotized parents had lost one or more infants, while only 49 per cent of the abstainers had suffered such losses. It required from eight-tenths to one year longer for the narcotized progeny to graduate from the grades, and their average age was one year and seven months older in the Academy.[10]

A parallel study[11] of the effects of coffee drinking by children on their *own* development enforces a conclusion previously reached, that a sharp separation cannot be made between the eugenical and euthenical aspects of various environmental factors. Statistics were compiled for 464 children in two schools for a period of one month. The drinkers averaged from one and one-half to four pounds less in weight, one-half to one inch less in height, three pounds less in strength of grip, 2.3 per cent less in conduct as concerns those who drank one cup only per day, and 7.8 per cent less as concerns those who drank four cups or more. The rank in lessons was from 2.6 per cent less, up to 29.6 per cent less for those who drank four or more cups.

By prosecuting on an adequate scale standardized researches in heredo-psychology, heredo-pedagogy and heredo-biology, analogous to those to which reference has been made above, we shall eventually secure the groundwork of facts needed by both euthenics and eugenics in order that they may attain the dignity of authentic sciences.

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[10] *Cf.* J. E. Hickman, in *Journal of Philosophy, Psychology and Scientific Methods*, 1912: 9, 234.

[11] Charles Keen Taylor, Effects of Coffee Drinking upon Children. THE PSYCHOLOGICAL CLINIC, June 15, 1912, p. 56 f.

ARE THE ELEMENTARY SCHOOLS GETTING A SQUARE DEAL?

By G. W. Gayler,
Superintendent of Schools, Canton, Illinois.

The study given below is a continuation of the one published last month entitled "Enrolment by Grades in Fourteen School Systems of Central Illinois." It aims to throw light upon the cause of the continuous decrease in attendance from the first grade to the senior year in high school. The question raised here is whether elimination is due to the fact that boys and girls do not desire an education or is it due to a lack of right conditions caused by the cheapening of the work? Would the elimination, at least in part, be obviated by a more equitable distribution of pupils and funds based on the percentage of children enrolled?

Much has been said in recent years about the high school and high school education. It is the one part of the system that has been kept constantly before the school public. No objection can be made to this but it should not be forgotten that the elementary graded school is the great bulwark of education. Here is where all the children of all the people go and in any democratic form of government these must be taken care of first. In a democracy the many must be cared for as well as the few, the 85 per cent must receive their due proportion of time and funds.

Table I gives data with regard to the grades only, for thirteen school systems of Central Illinois. In these thirteen systems are enrolled 28,865 pupils. These pupils are taught by 853 teachers, an average of 34 pupils to the teacher. Only four school systems (Jacksonville, Quincy, Moline and Champaign) have a lower average. The average cost of teaching is $17.20 per pupil. Four towns have a higher cost per pupil, the same that have a lower average enrolment than the general average. The average salary per teacher in these thirteen systems is $582.29 per year or $64.70 a month for nine months in the year. Five towns pay above the average. These are Moline, Rock Island, Pekin, Decatur, and Quincy.

Table II concerns the high school only. There are 4999 pupils enrolled in the thirteen systems and 205 teachers employed. This gives on an average 24 pupils to the teacher. The cost of teaching in the thirteen schools for the year (found by adding

TABLE I.

Town	Grade Enrolment	Grade Teachers	Average No. of Pupils	Average Cost per Pupil	Average Yearly Salary	Average Monthly Salary	Total Cost of Grade Teachers
Canton.....	1857	49	37.9	13.18	499.59	55.51	24,480
Jacksonville..	1538	58	26.6	20.7	549.31	61.03	31,860
Moline.....	2874	20	23.9	25.8	619.47	68.83	74,336.39
Champaign..	1698	51	33.2	17.3	577.06	64.11	29,430
Rock Island..	2977	83	35.8	16.1	614.51	68.27	51,005
Monmouth..	1256	35	35.8	15	538.57	59.84	18,850
Galesburg...	2722	72	37.8	15.3	581.47	64.60	41,866
Beardstown..	1116	28	39.8	12.1	482.34	53.51	13,506
Pekin.....	1689	40	42.2	15.24	643.75	71.52	25,750
Clinton.....	1011	28	36.1	13.6	492.85	54.76	13,800
Mattoon.....	1947	45	43.2	11.7	510.50	56.72	22,972.50
Decatur.....	4685	124	35.3	16.1	608.70	67.63	75,480
Quincy.....	3495	120	29.1	23.8	611.35	67.92	73,362.71
Totals.....	28,865	853	33.8	17.20	582.29	64.70	496,698.60

TABLE II.

Town	High School Enrolment	High School Teachers	Average No. of Pupils	Average Cost per Pupil	Average Yearly Salary	Average Monthly Salary	Total Cost of High School Teachers
Canton....	255	10	25.5	34.20	872.25	96.91	8,722.50
Jacksonville	354	17	20.8	48.08	995.26	110.58	16,920
Moline.....	418	19	22	38.73	852.21	94.69	16,192.12
Champaign.	387	15	25.8	36.55	943	104.77	14,145
Rock Island	501	20	25	40.50	1014.75	112.75	20,295
Monmouth.	392	14	28	28.88	808.92	89.95	11,325
Galesburg..	774	28	27.6	32.31	1389.72	154.41	25,015
Beardstown	193	7	27.5	24.38	672.28	74.70	4,706
Pekin.....	198	9	22	37.87	833.33	92.60	7,500
Clinton....	216	9	24	31.20	751.11	83.45	6,760
Mattoon...	229	9	25.4	33.71	857.77	95.30	7,720
Decatur....	582	28	27.8	43.61	906.50	100.72	25,382.50
Quincy.....	500	20	25	49.05	1226.40	136.26	24,528.16
Totals.....	4999	205	24.4	37.80	922.28	102.55	189,211.28

salaries of all high school teachers) is $189,211.28 or an average cost per pupil of $37.80.

Five schools cost more than the average. These are Jacksonville, Moline, Rock Island, Decatur, and Quincy. The average salary paid is $922.28 per annum or $102.55 a month. Six schools are paying above the average. These are Jacksonville, Champaign, Rock Island, Galesburg, Decatur, and Quincy.

The most interesting points in this study come out in comparing and contrasting the figures given in the two tables. Notice that in the eight grades in these schools 28,865 children are taught by 853 teachers, an average of 34 children to the teacher, while in the high schools 4999 pupils are taken care of by 205 teachers or an average of 24 pupils to the teacher. The grades have the children when they are most helpless and when more individual instruction is necessary and yet have on the average ten more pupils to the teacher.

Further it will be seen that the average cost for teaching children in the grades per pupil enrolled is $17.20, while in the high school it is $37.80 or a little over twice as much. When we know that on the average about 85 per cent of the children in these systems never go further than the eighth grade, the question naturally arises as to whether the large majority of the children are getting a fair proportion of the public money expended for education. Are all the children of all the people given an equal opportunity?

The average salary of the grade teachers in these schools is $582.29 per annum or $64.70 a month, while the high school teachers receive on the average $922.28 per year or $102.55 per month. In all cases both in the high school and in the grades the salaries of the principals were included, but the salaries of supervisors and superintendents were not. Here we see that the children of the grades do not have as high salaried teachers as pupils of the high school although it is generally agreed that the best trained teachers are needed in the elementary school rather than in the high school.

Table III shows the percentage of pupils taught in the grades as compared and contrasted with the percentage cared for by high schools and the percentage of money paid for salaries in the grades as compared with the percentage paid for salaries in the high schools. For example the grades in Canton take care of 88.2 per cent of the total enrolment but receive 73.7 per cent of the total money paid for salaries, while the high school takes 11.8 per cent of the pupils and receives 26.3 per cent of the total money

spent for salaries. In the thirteen systems 84.1 per cent of the pupils are taught by the teachers of the grades who receive 71.3 per cent of the total money spent for teachers' salaries, while in the high schools there are enrolled 15.8 per cent of the students and the teachers receive 28.7 per cent of money spent for salaries. This does not take into account money spent for apparatus and other material, which is always greater in the high school than in

TABLE III.

Town	Per cent of Pupils in Grades	Per cent of Money for Grade Teaching	Per cent of Pupils in High Schools	Per cent of Money for High School Teaching
Canton	88.2	73.7	11.8	26.3
Jacksonville	81.2	65.3	19.2	34.7
Moline	87.3	82.1	12.7	17.9
Champaign	81	67.5	20.9	32.5
Rock Island	85.5	71.5	14.3	28.5
Monmouth	70.2	62.4	23.8	37.6
Galesburg	77.9	62.5	22.1	37.5
Beardstown	84.6	74.1	14.7	25.9
Pekin	89.5	77.4	10.5	22.6
Clinton	82.1	66.6	17.6	33.3
Mattoon	89.5	74.8	10.8	25.2
Decatur	88.9	74.8	11.1	25.2
Quincy	87.4	74.9	12.6	25.1
Average	84.1	71.3	15.8	28.7

the elementary school. After studying these conditions carefully, the very significant question arises—Are the grade children, the eighty-five per cent or more of the total enrolment, getting a square deal? The facts given above bear out the criticism by Dr. G. Stanley Hall in "Educational Problems" (page 543) that "We have paid relatively vastly too much attention to the few who go on to secondary and higher technical, liberal and professional education, and have wastefully, not to say disgracefully, neglected the needs of the masses of our children and youth."

AN EXPERIMENT IN CONCENTRATION.

By Herbert F. Clark,
Principal Olive Special School, Los Angeles, Cal.

It has often been charged against the public school system that the average pupil could do the same amount of work in much less time if only the opportunity and the proper incentive were given him. I decided recently to test out this criticism, and will now state the conditions and the results and offer an interpretation of some of the educational principles involved.

The group of children consisted of fourteen boys, approximating 6th, 7th, and 8th grades. They comprise one room of the Los Angeles Special Schools, the group being made up of truants, incorrigibles and other misfits from the ordinary grades.

On last Friday morning I put on the board a careful assignment of the work in each subject for the day. I designated what seat work should be done and what the recitation would consist of. When the boys came in I told them that when they had finished all the work required, in a manner satisfactory to me, they could be excused for the day. I gave each boy a slip of paper on which he wrote his name and all the subjects required. When a boy finished a subject he brought in the list and I checked it off. The list of subjects was writing, arithmetic, reading, history, language, geography and spelling. The eighth grade had geometry and agriculture instead of arithmetic and geography. I warned them that no careless work would be accepted.

With these preliminary suggestions the boys went to work. They gathered in groups, freely discussing any phase of their work. They argued out their difficult points in arithmetic for instance; some going to the black-board while others used paper. It was of course necessary for me to have some plan of hearing the recitations. I took the first group who were ready for arithmetic, and after that I had to take those boys first whenever a group were all ready to recite.

When recess time came along only a few boys cared to go out and play. The rest stayed in and worked.

The result was that the three boys in the seventh grade had their work all done and were gone at eleven o'clock. The eighth grade boys were through at eleven-thirty and all were gone by eleven-forty-five.

Such an experiment brings up a large number of educational

questions. Is it well for children to do intensive concentration for a short period of time and then get out in the open air for a longer period of play? My answer to that would be, yes, provided the mental concentration was voluntary on the part of the child, under wholesome physical conditions, and with a proper incentive. Next,—Did these boys do a reasonable amount of school work for one day? My answer to that again is, yes. How far can that principle of action be carried into the ordinary school? My answer is, I do not know. Was the quality of work done a credit to boys of their ages? Yes, most of it. Some of the drawings on the board were excellent. Some of the language papers were miserably poor, but isn't it advisable to accept poor work provided you feel that the child has done reasonably well, considering his abilities? Such a plan has a tendency to break up many of the old notions as to the necessity of regular hours, regular recitations and mark-time system. But if by so doing we get nearer to the hearts of the boys, if we get enough of real effort from them to insure reasonable growth let us by all means let some of the good old-fashioned stereotyped methods go.

REVIEWS AND CRITICISM.

The Conservation of the Child. By Arthur Holmes, Ph.D. Philadelphia and London: J. B. Lippincott Company: 1912. Pp. 345.

In more than half the public school rooms in America can be seen, painted as a frieze upon the wall, or printed and hanging in a frame of raffia, or simply written upon the blackboard in the teacher's precise handwriting, the axiom, "We learn to do by doing." If this be a true law for children, it is no less true for those who have to do with children. The way to learn how to run a psychological clinic is to run it.

Under the direction of Dr. Lightner Witmer, Dr. Holmes has conducted for several years, three of the five afternoons a week, the Psychological Clinic of the University of Pennsylvania. His "Conservation of the Child" tells as much as it is possible to tell of the way the clinic is carried on, its organization, its equipment, and its function in the community. Workers in this very rich field of scientific and social activity can, of course, learn more of the practical methods of the Psychological Clinic by spending a few weeks in daily observation, preferably in summer when the special classes are in session, than they can

by reading any book. But even those who have passed such apprenticeship will find that Dr. Holmes has much to offer them. In the chapter on "Classification of Clinic Cases" he gives an excellent version of the Binet tests, as well as the pedagogical tests in use at the clinic at the University of Pennsylvania. He includes likewise a questionnaire for the general examination of a clinic case, a report blank for the Binet tests, a schedule for the physical examination, and a report blank for a thorough mental examination based upon psychological tests. The "Tests for Mental Analysis," as the author calls them, have been worked out by Dr. Clara Harrison Town. Some of them need no apparatus, and are applicable to the routine examination of children. Others are more complex, and require for their performance a well equipped psychological laboratory with a trained psychologist to adjust the instruments and take the record.

It is for the general public, however, not for a few specialists, that Dr. Holmes has written his book. Everyone who cares about children (and where is the sane man or woman who does not care for them?) will read it with interest. Parents who are baffled by the problem of the "child who is different" will get from the book the beginnings of insight. Teachers who have had experience with difficult children will find it an aid to better understanding. Even those who have no children to worry over, provided they possess what is loosely called "the social consciousness," and take a living interest in the welfare of their kind, may spend a profitable hour or so with "The Conservation of the Child."

To the Casual Reader, if any such there be, we would suggest that a good way to get an idea of what a psychological clinic is like, is to read first the chapter on "Sociological Relations," near the end of the volume. This tells where the children come from, what they look like, and how they behave,—or generally, how they misbehave. Then he,—our Casual Reader,—may look at the many photographs of children of all sorts. After that he may take the chapter on the "Operation of the Clinic," and then finish the book at his pleasure.

A. T.

The Psychological Clinic

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RETARDATION IN NEBRASKA.[1]

By William Henry Stephenson Morton,
Superintendent of Schools, Ashland, Neb.

This investigation was undertaken to ascertain, if possible, the average age for the various grades in the elementary schools of Nebraska; how many pupils are ahead of this grade average, and how many are behind it. The term *retardation* is a new one in the literature of education, having been borrowed from physics, but its general use by school men seems to assure its permanency. Like all new terms, there is some difference of opinion as to its meaning. In one case the "progress" standard is taken as the criterion in determining whether the pupil is to be classed as sub-normal, normal, or super-normal. On the other hand, the "age-grade" standard is considered by many to be the more exact and objective measure of retardation.

Holding in mind that children differ greatly both physically and mentally and that all cases cannot be subjected to the age-grade standard for comparison, yet it does seem that the almost universal method prevalent in our city schools of classifying the pupil by age and grade must be acknowledged as being the better, if not the only means of determining the number of backward pupils in our schools. This is especially true at the present time, since there is so little available material on record in our schools relating to individual progress. For purposes of comparison, then, the age-grade standard is about the only standard that can be applied with accuracy to the various school systems. When school administration reaches a more scientific basis, and records of the progress of each student can be had, we will be in a position to speak seriously of the progress standard as workable. At the present time we are far from it.

It has been declared, and we cannot ignore the statement, that retardation must be found by knowing the pupil's rate of progress through the various grades of our schools, regardless of his age at entering. Superintendent Greenwood, one of the staunchest

[1] A thesis submitted to the Faculty of the Graduate College of the University of Nebraska for the degree of M.A.

supporters of the progress standard, declares that retardation is not a question of age without respect to progress; but it is a question of the time required to do a given amount of work without regard to age. This seems to be a dangerous doctrine, for were it to find lodgment in the public mind it would have the effect of advancing the age for any grade.

It must be recognized that children who vary greatly in age, but who are trying to do work in the same grade, will find the work unsuited to the two extremes. The younger ones find the work altogether too difficult, too old in content and presentation; while on the other hand, the elder children of the grade find the work not of a kind suitable to their age. It may savor too much of the play type to them. They may not be able to master the subject matter of the grade, and their very age calls for a different method or manner of presentation. The teacher is handicapped. The big child must be cared for in seating. Games adapted to the average of the room will not fit him. He becomes, in fact, a misfit, due to his being over-age, no matter what the cause may be, and it is for this reason that age is a fair standard for measuring retardation.

A second vital reason is that since democracy requires certain achievements from every individual and since it pays for his education, he should at certain ages have completed certain grades of this work, an amount equal to the average child. If the average child at nine has completed the third grade, then the boy who is eleven and has just completed it is two years behind the former in the race of life. His chances for overtaking him are indeed very limited since our school machinery tends to interrupt him if he strives to gain on his fellows in the grade. Thus time is lost to him and to society alike.

Those in favor of the progress standard argue that it is sensible for parents not to send their children to school until a late age, for, they say, if he does not enter the first grade until he is eight years old, he will soon overtake the other children by "skipping grades". Working upon this premise, they ask how then is it possible to gauge retardation on the basis of the age-grade standard?

But what limited figures we have on this subject do not support this original principle, and hence the conclusions are wrong. It is true that no adequate attempts have been made to ascertain to what extent pupils skip grades. However, such studies as we do have show only a very low percentage in any graded school system who skip grades.

Professor Keyes adds some valuable information to this subject. In a recent investigation of the individual records of 326 graduating accelerates, he finds the following to be true. He says:[2] "It appears that more than 85 per cent of these accelerates enter school at six years old or under, the average entrance age being 5.9 years. More than 67 per cent of them graduate when 14 years old or younger, the average graduating age being 13.9 years. Late entry does not contribute to acceleration. Of course, it must be borne in mind that late entry, while it is not necessarily evidence of sub-normal capacity or low mentality, points in that direction."

Mr. Keyes made a study of 683 cases of arrests, or those who had failed, and he found the following:[3] "Of all those who began the first grade before the fifth birthday, 50 per cent are compelled to repeat the grade. The same thing is true of all who enter over eight, or over seven and one-half years. Almost the same proportion, 46 per cent, fail somewhere among those who enter between seven and seven and one-half. Practically one-half of all children who begin the first grade after reaching their seventh birthday or before reaching their fifth, may be expected to lose a year some time during their grammar school course."

In an article in the *Educational Review* in 1909, Dr. R. P. Falkner cites from the reports of both large and small cities such figures as he could find that showed at all the number of pupils who were passing readily through the grades. He finds in Somerville, Massachusetts, 1907, the amount of rapid progress was 1.4 per cent of all promotions. In Springfield, Ohio, where 4755 promotions were recorded, only 7 of these or not quite 0.15 per cent represented the number promoted more than one grade at the end or during the yearly term. In New York City, Dr. L. P. Ayres, of the Russell Sage Foundation, studied the records of 946 fifth grade pupils and found that 5.4 per cent accomplished their work in less than the regularly allowed time. In one of the Philadelphia reports, Dr. Falkner found 2406 pupils out of 122,644 or less than 2 per cent were thus described as incidental. Dr. Falkner further says,[4] "estimated on the progress standard the per cent of retarded pupils is virtually the same as if estimated on the age-grade standard." He says, in fact, that in "all but one case, where figures are available, the progress standard gives a higher percentage of retardation than the age-grade standard." This is very evident, as the age-grade standard usually allows at least one year

[2] Keyes, Charles Henry: *Progress Through the Grades of City Schools*, N. Y., 1911, p. 13.

[3] Keyes, Charles Henry: *Ibid.*, p. 16.

[4] *Educa. Rev.*, XXXVIII., pp. 122-32.

of failure before the pupil is classed as retarded; for if we call seven years the age for the first grade, then how about those who enter at five or six? Dr. Falkner says further in the last named article, "It doesn't matter much how the pupil happened to be over-age for his grade; if he is there he is retarded, for the effect is just the same."

Now in the light of the small per cent of rapidly moving pupils, and in the light of the fact that 50 per cent of those pupils who enter after their seventh birthday or before their fifth must lose a year somewhere in the elementary schools, it would seem unwise to have the pupils enter the first grade at a late age and depend upon their ability, or upon chance to overtake the other pupils by "skipping" grades. Thus we see that it becomes a serious matter if any great number of our pupils fall behind their grade in age, for it simply means that in most cases they will continue to travel in the rear.

The problem *must* be faced, for every school has its over-age pupils. It is true that there are more in some schools than in others, but they are always present in varying numbers. In the investigation conducted by Dr. Ayres,[5] it was found that only 7 per cent in Medford, Massachusetts, were retarded according to the age-grade standard, while in Memphis, Tennessee, among the colored children 75 per cent were retarded. The other cities ranged anywhere between these two extremes. Dr. Ayres found that on the average about 337 per cent of all pupils in our public schools belong to the retarded class. Superintendent Cornman found the range of retardation to be from 51 per cent in Boston to 77.6 per cent in Kansas City.[6]

The investigation in Nebraska differs a little from these. Here it was found that out of 25,449 pupils only 28.5 per cent are retarded. It does not make much difference which of these percentages we take; it gives us an idea of the size of the problem with which we are dealing. It does not "concern a few ungraded, feeble-minded children. It is one affecting most intimately, perhaps 6,000,000 children in the United States."[7]

It will be interesting to note here some of the findings of Dr. L. P. Ayres in his investigations of 20,000 pupils in fifteen schools in the Borough of Manhattan, New York City. The results are published in a volume entitled, "Laggards in Our Schools." He took all who were under eight years as of normal

[5] Ayres: *Laggards in Our Schools:* p. 3.
[6] THE PSYCHOLOGICAL CLINIC: Feb., 1908.
[7] Ayres: *Laggards in Our Schools*, p. 3.

age for the first grade, those under nine years as of normal age for the second grade, and so on; those who were eight or more for the first grade, and those who were nine or more for the second grade, and so on, being considered over-age or retarded.

The following table shows normal ages for all grades according to Ayres:

TABLE I.

NORMAL AGE OF CHILDREN IN THE GRADES.

Grade	*Age*	*Grade*	*Age*
First	6 to 8	Fifth	10 to 12
Second	7 to 9	Sixth	11 to 13
Third	8 to 10	Seventh	12 to 14
Fourth	9 to 11	Eighth	13 to 15

Ayres says that these ages have been accepted by common consent as the normal ages for these grades by nearly all school men who have interested themselves in the problem.

In the study made by Ayres only one table showing age and grade distribution is given, and that is of Memphis, Tennessee. The table is copied here for reference for those who may not have access to Ayres' work.

TABLE II.

AGE AND GRADE DISTRIBUTION IN MEMPHIS, TENN., JUNE, 1908.

Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Grade 1		782	699	368	120	44	21	12	1	4	1		1				2053
2		11	177	403	349	191	81	45	13	6	2						1278
3			56	131	333	335	230	109	43	25	6	1					1269
4				5	104	264	302	229	126	44	10	3	2				1089
5					8	67	219	201	182	85	26	8	1	1			798
6						6	83	203	245	158	69	25	1				790
7						1	9	77	178	175	92	43	3	1			579
8								6	63	130	110	73	10				392
																	8248

With the hope of ascertaining the age and grade distribution in Nebraska, the writer last autumn set about gathering data of this nature. He has collected statistics on age-grade enrolment from ninety-six cities and towns in Nebraska, scattered over all parts of the state. The figures were collected by sending blanks to the superintendents or principles of the schools between November 15, 1911 and February 1, 1912. The school men in almost every case responded promptly. The list of the towns from which reports were received follows (a few reports were received too late for classification):

Albion
Alda
Alliance
Atlanta
Amherst
Ashland
Auburn
Battle Creek
Belgrade
Bellevue
Bellwood
Bertrand
Benson
Belvidere
Bennington
Beaver Crossing
Beemer
Beatrice
Benedict
Benkelman
Bayard
Big Spring
Blue Hill
Blue Springs
Bloomfield
Bruning
Bloomington
Broken Bow
Bradshaw
Coleridge
Cedar Rapids
Central City
Chadron
Clear Water
Center
Creighton
Chappell
Chester
Crete
Cody
Curtis
Dodge
Dakota
David City
Exeter
Edison
Emerson
Elmwood
Elba
Eustis
Elwood
Elgin
Franklin
Fairbury
Fairmont
Friend
Guide Rock
Gretna
Gresham
Giltner
Geneva
Hartington
Havelock
Harvard
Indianola
Laurel
Loup City
Louisville
Lawrence
Merna
Minden
McCool Junction
Norfolk
Nebraska City
Oakland
Plattsmouth
Pawnee City
Red Cloud
Superior
Sutton
Sumner
Syracuse
Shelton
St. Paul
Schuyler
Table Rock
Valentine
Wilber
Woodlake
West Point
York

TABLE III.

AGE AND GRADE DISTRIBUTION OF PUPILS IN 96 NEBRASKA SCHOOLS, 1912.

Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Over-age		Super-normal	
																		Number	Percent	Number	Percent
Grade 1	1098	2083	1000	400	92	35	10	2									4720	539	11.4	1098	23.2
2	2	224	1295	1040	401	160	52	16	7	2	1	1					3201	640	19.9	226	7
3			257	1045	1004	559	223	98	41	15	1						3243	937	28.8	257	7.9
4			5	249	965	973	588	252	162	59	26	4	2				3285	943	28.7	254	7.7
5				25	220	814	940	623	321	178	48	14	2	2			3187	1188	37.2	245	7.6
6				1	22	213	675	826	517	317	148	36	9	3			2767	1030	37.2	236	8.4
7						18	228	650	754	563	268	96	21	6		1	2605	955	36.6	246	9.4
8						1	19	195	623	707	507	284	74	23	7	1	2441	896	36.7	215	8.8
Totals	1100	2307	2557	2760	2704	2773	2735	2662	2425	1841	999	435	108	34	7	2	25449	7128	28.5	2777	10.9

The figures from these various reports have all been assembled in the preceding table. There were 25,449 pupils reported, and their distribution by age and grade is shown.

It will be noted that the enrolment is much larger in the first grade than in any other. This is perhaps explained by the fact that a number of schools provide for more than one year's work before they promote to the second grade.

The writer is fully aware that there is a probability of error in collecting figures of this kind because our schools have no common standard of recording such data. Indeed a large per cent of them have not kept figures of this nature in any manner. This was brought very forcibly to his attention by a number of letters from the best school men, saying that their attention had never been called to this phase of school supervision. Another fact which speaks the same truth is that in every case where the superintendent refused to send the statistics of his school, he gave as his reason that the figures were too hard to get, showing that nothing of the kind was on file now in his office, and that he and his teachers were not in the habit of collecting such data. This in itself presents a problem, and much work is needed to standardize in Nebraska, as well as elsewhere, school reports of various kinds.

Another probable source of error is in the different meanings attached to the ages. Some think a child seven years when he is anywhere between six and a half and seven and a half; others from seven to eight.

Recognizing these erratic conditions, the above table seems to show very well the actual distribution of school children in Nebraska by age among the different grades of our graded schools.

So far as the writer knows this is the only investigation of the kind ever attempted excepting one by Lurton[8] in Minnesota. Many investigations have been made on the age-grade enrolment before, but they are either upon one city school, or a number of the larger city schools, while this investigation has omitted even Omaha and Lincoln, that it might be wholly a study of small city and town schools, all located in Nebraska.

From table III it will be seen that each grade contains pupils varying greatly in age. For example, the first grade varies from 1098 five-year-olds to two twelve-year-olds; the second grade from two five-year-olds to one sixteen-year-old; and the eighth grade from one child who is ten years old to one who is twenty.

[8] Lurton, Freeman E. *Retardation Statistics from the Smaller Minnesota Towns.* THE PSYCHOLOGICAL CLINIC, Vol. V, p. 13, March 15, 1911.

The same conditions exist in Memphis, Tennessee, as shown by table II.

This immediately raises three questions: (a) What is the normal age for any grade? (b) How many pupils are super-normal or ahead of their grade? (c) How many are sub-normal or behind their grade?

In figuring out these problems, the ages six or seven (five years, eleven months to seven years, eleven months, both inclusive) were taken as normal for the first grade; seven or eight years for the second grade; eight or nine for the third grade, and so on. All pupils who were above seven years and eleven months for the first grade, and so on, were considered sub-normal or retarded. And all who were under six years old for the first grade, seven years for the second grade, and so on, were considered super-normal.

With but one exception this is the same standard as Dr. Ayres used in his investigation. He does not take into account those here termed super-normal, but says all who are under eight years old are of normal age for the first grade, and all under nine years for the second grade, and so on through all the grades.

It appears reasonable that for comparative results we are warranted in establishing the above standard for super-normals, leaving a range of two years for the normal age. Using the above standards, we find the following facts to be true: (a) of the 25,449 pupils, 7128 or 28.5 per cent are sub-normal; (b) 2777 or 10.9 per cent are super-normal; (c) while 60.6 per cent are of the normal age. Dr. Ayres found the percentage of retardation for all cities studied by him to be 33.7 per cent or 5.2 per cent more than this investigation. This is not so great a difference as might be expected since the data for one come from the large cities, and those for the other from the small cities, the towns, and the villages.

It becomes an interesting question as to what is the significance of this large amount of retardation in our Nebraska schools.

Dr. Ayres[9] says, "Wherever we find that the retarded children constitute a large part of all the school membership, we find that many of the children do not stay in the schools until they complete the elementary course. Children who are backward in their studies and reach the age of fourteen (which is generally the end of the compulsory attendance period), when they are in the fifth or sixth grade instead of in the eighth, rarely stay to graduate.

[9] Ayres: *Laggards in Our Schools:* p. 3.

They drop out without finishing. The educational importance of this fact is great. As retardation is a condition affecting our schools to some extent, so too the eliminating, or falling out of the pupils before finishing the course, is an evil found everywhere but varying greatly in degree in different localities. In Quincy, Massachusetts, of every hundred children who start in the first grade, eighty-two continue to the final grade. In Camden, New Jersey, of every hundred who start, seventeen finish. . . . The general tendency of American cities is to carry all of these children through the fifth grade, to take one-half of them to the eighth grade, and one in three through the high school."

It will be interesting to study in the following table the membership of the various grades reported in the Nebraska investigation:

TABLE IV.

AGGREGATE GRADE DISTRIBUTION OF 96 TOWNS IN NEBRASKA.

Grade	*Membership*
First	4720
Second	3201
Third	3243
Fourth	3285
Fifth	3187
Sixth	2767
Seventh	2605
Eighth	2441
Total	25,449

It is to be noted that aside from the first grade there is not so much difference in the enrolment of the various grades as one might expect. The actual enrolment (tables III and IV) varies from 3201 in the second grade to 2441 in the eighth grade, a difference of 780 pupils, or based upon the second grade, a difference of 24.3 per cent; while in Chicago[10] it is 62.3 per cent; in North Carolina in 1906, 77 per cent; in Tennessee the same year it was 87 per cent; and in Utah 47 per cent. This seems to show that Nebraska is holding her pupils better than many other places. The question immediately presents itself as to what causes this difference, and as Dr. Ayres[11] points out, we are likely to say

[10] Ayres: *Laggards in Our Schools*, p. 14.
[11] Ibid: p. 21.

immediately that it is caused by the pupils having left school. This is true in part but only in part. To quote Dr. Ayres, "There is a certain natural decrease in the number of children with advancing age which is due to death; thus we may always expect to find fewer persons with each advancing year of age. Secondly there is an increase in size of each successive and younger generation of children which is due to the natural increase in population. Looked at from the standpoint of the age of fourteen, each younger generation is larger. Looked at from the standpoint of the age of seven, each older generation is smaller than the preceding. . . . These two elements—that of death and that of increased age of each succeeding generation—contribute to form the factor of population."

Again many pupils fail to be promoted regularly from grade to grade, and are left behind to repeat their work. This is the factor of retardation, and is one of the causes for the difference in the enrolment in the grades.

A third important factor is elimination. All children do not finish the elementary school, but begin to drop out from the early primary grades up to and including the eighth grade.

Dr. Ayres says[12] that other factors may and do affect the size of the grades in certain cases and localities. Among the possible factors may be mentioned the influx of children whose schooling has already begun in other places; the tide to and from parochial schools; and the enrolment of immigrant children who enter the school at comparatively advanced ages. But such facts are local and irregular, and their influence is undoubtedly compensatory to a certain extent in their action. On the other hand, the three factors of *population, retardation,* and *elimination* are always at work.

The difference between the enrolment of the eighth grade and that of the first grade in Nebraska seems to be much less than in other places, yet there is plenty of retardation, even though Nebraska does seem to hold her pupils well through the entire elementary school.

It certainly is a fact of significance to Nebraska school people, that 28.5 per cent of the boys and girls in their schools are retarded. It presents a question for solution to every school man (and woman) who has his profession at heart and wishes to do for his pupils what he can. The fact that many of the pupils are repeating their work is very evident. Since it is the almost universal rule in Nebraska that parents start their children to school when

[12] Ayres: *Laggards in Our Schools,* p. 22.

they are six or perhaps more often when only five, it can plainly be seen that a child may repeat one to two years and yet not be counted retarded by the age-grade standard. Suppose we take a new standard for the normal age and say that all who are past seven years old for the first grade, eight for the second grade, and so on, are over-age or retarded, we will then find in this investigation that there are 56.2 per cent retarded. If "retardation" is to mean the "repeater," this standard more nearly shows the true situation.

The following table shows the per cent of retardation (Ayres standard) and enrolment in the grades of twenty-five representative towns and cities in Nebraska:

TABLE V.

School	*Per Cent*	*Enrolment*
Beatrice	24	1707
Benedict	40	71
Benkelman	37	130
Bloomington	34	121
Bloomfield	28	285
Broken Bow	45	426
Cedar Rapids	36	169
Crete	24	512
David City	17	360
Dewitt	21	171
Elba	36	99
Fairmont	16	199
Friend	31	230
Lawrence	25	63
McCool Junction	20	89
Minden	26	317
Norfolk	43	957
Plattsmouth	27	804
Shelton	30	249
Syracuse	20	184
Superior	19	403
Sutton	37	442
Tecumseh	23	290
Wahoo	21	90
Wood Lake	21	85

The following tables are inserted simply for reference or comparison. The four schools selected are representative of all the schools reported:

TABLE VI.

AGE AND GRADE DISTRIBUTION IN BEATRICE, NEBR., NOV. 4, 1911.

Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Grade 1	95	138	58	30	4	3	1										329
2		49	105	62	19	19	7	4									265
3			21	76	58	44	15	10	6								230
4				31	62	42	34	16	11	3	3						202
5				4	29	55	44	39	20	10	3						204
6					3	23	39	51	36	29	7	1					189
7						1	12	35	36	30	6						120
8								9	41	54	23	9	1				137
																	1676

TABLE VII.

AGE AND GRADE DISTRIBUTION IN NORFOLK, NEBR., FEB. 8, 1912.

Age	5	6	7		9	10	11	12	13	14	15	16	17	18	19	20	Total
Grade 1	11	87	28	15	3	1											145
2		6	58	60	35	12	2										173
3				35	52	56	13	4		1							161
4				2	25	40	30	14	16	2	2						131
5					1	11	36	20	20	14	2						104
6							3	20	27	36	14	7					107
7							3	8	24	21	19	10	3				88
8								2	9	13	19	9	7	2			61
																	970

TABLE VIII.

AGE AND GRADE DISTRIBUTION IN FAIRMONT, NEBR., DEC. 19, 1911.

Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Grade 1	16	22	9	2													49
2		3	7	5	2	1											18
3			4	12	4	2	1										23
4				3	9	4	2	1									19
5					1	10	7	4	2								24
6							8	7	3	1	1						20
7							4	2	7	5	1						19
8								4	6	11	2	2					25
																	197

TABLE IX.

AGE AND GRADE DISTRIBUTION IN MINDEN, NEBR., DEC. 21, 1911.

Age	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Grade 1		18	10	5	1	1											35
2		4	19	17	3			1									44
3			7	10	6	10	2	1									36
4				2	13	11	4	2									32
5					3	13	10	3	5	2							36
6						5	6	12	6	3	2						34
7							1	12	16	5	5	2					41
8								1	9	6	9	6	3	1			35
																	293

From a study of table V it will be seen that the percentage of retardation varies greatly among different places. For example, Fairmont has only 16 per cent retarded while Broken Bow has 45 per cent, with the others ranging all along between these two extremes.

It would be very interesting to know what causes so much difference. There seems to be no connection between the percentage of retardation and the size of the school. The small schools may run high or low in percentage of over-age pupils and so may the larger ones. This shows that we must look elsewhere for our causes of retardation.

Asking one hundred and seven school superintendents why so many pupils failed to finish the eight grades of our public schools, about 290 different reasons were received, most of the men giving more than one. The writer realizes that the question why did a pupil not finish the eighth grade is not directly the same question as why was he retarded, but the two are so closely related that what answers one will throw light upon the other.

Had the direct question of what causes so much "over-ageness" in our public schools been asked, some different answers would have been received. But there can be no doubt that these answers show many of the worst causes of retardation.

If we take answers numbered 1, 3, 6, 7, 8, 12, 15, and 23, we have 187 of all the answers that came in; 35 of these answers point to *incompetency* of the teacher, and 31 to inadequate curriculum, while 16 answers said, failure to make grades, and becoming over-age. The first two answers just mentioned are entirely school problems, for we must see to it that the teacher is properly trained and that our courses of study are right. Of course there are many other causes for these retarded conditions that the school cannot overcome, and in which the school has nothing whatever to say.

There are plainly two sides to the matter. The school must be held responsible for one part, and society for the other. It then becomes the duty of the school to care for its own part directly, and indirectly to help society care for its part, through encouragement, agitation, and enlightenment.

In studying the problem of retardation, we are face to face with another very serious one, that of elimination. This has been mentioned above as one of the three chief factors affecting grade distribution. This is true, primarily, because repetition and retardation are almost always found side by side. In fact, most

of our retardation in Nebraska is caused by pupils repeating their grades, no matter what may cause the repetition. Repetition soon results in elimination; because when the pupil finds himself older than the other members of his grade, and sees himself nearing his fourteenth birthday and not yet, perhaps, in the eighth grade, he is going to quit the school for the farm, the shop, or the street.

TABLE X.

THE 270 ANSWERS RUN AS FOLLOWS:

1.	Eagerness to earn money	27
2.	Lack of provisions for backward pupils	8
3.	Incompetency of teacher	35
4.	Irregular attendance	7
5.	Lack of male teachers	1
6.	Too rapid promotion (work poorly done)	10
7.	Lack of appreciation of education by pupils	13
8.	Home conditions { Lack of home encouragement; Lack of home control; Parents do not appreciate importance of education }	40
9.	Lack of public sentiment	8
10.	Cigarettes	7
11.	Reading yellow-backed novels	2
12.	Inability of the child	15
13.	A general dislike for school	3
14.	Poor environment	6
15.	Failure to make good grades, and becoming over-age	16
16.	Lack of personal attention from the teacher	2
17.	Physical condition of the child	4
18.	Lack of industrial work	6
19.	Lack of proper interest	4
20.	Idleness and bad habits out of school	5
21.	General lack of ability in social conditions	3
22.	Laziness	9
23.	Inadequate curriculum	31
24.	Heredity	3
25.	Bad pedagogy	5
26.	Temporary interruption which removes the child from school, and difficulty of readjustment afterwards	1

TABLE XI.

ENROLMENT BY AGE OF 25,449 PUPILS FROM 96 TOWNS IN NEBRASKA.

Age	*Enrolment*
5	1100
6	2307
7	2557
8	2760
9	2704
10	2773
11	2735
12	2662
13	2425
14	1841
15	999
16	435
17	108
18	34
19	7
20	2
Total	25,449

A study of the age distribution in the above table shows that there is a gradual increase up to the ages of 8 to 10, reaching the maximum at 10 years. This shows that there are a considerable number of pupils repeating their work along about the ages from 8 to 12 years. We note that there is a rapid decline in enrolment after the age of 13. Dr. Ayres says,[13] "Comparatively few pupils will remain in the school after the age of fourteen." The following table of Ayres[14] shows the age distribution of 58 cities reduced to relative terms:

TABLE XII.

DECLINE IN ATTENDANCE.

AGES 10 TO 16 YEARS. RELATIVE FIGURES.

Age	*Pupils*
10	104
11	103
12	100
13	90
14	63
15	30
16	15

[13] Ayres: *Laggards in Our Schools*, p. 28.

[14] Ibid: p. 28.

(*To be concluded.*)

THE BORDERLAND BETWEEN FEEBLEMINDEDNESS AND INSANITY.

By Clara Harrison Town, Ph.D.,

Director of the Department of Clinical Psychology, Lincoln State School and Colony, Lincoln, Illinois.

In discussions concerning the various types of insanity frequent mention is made of borderland cases. Such borderland cases are individuals in whom some psychosis seems to be potentially present though not completely evolved, individuals who on the one hand are not quite normal, and who on the other hand are not quite insane. In discussions concerning the feebleminded conditions mention is also frequently made of borderland cases. These borderland cases are individuals who just miss normality, individuals who are able to read and write and do much work with ability and dexterity but who never reach the intellectual level of their social class, who are always at a disadvantage in their dealings with others.

Cases of insanity occurring in feebleminded individuals are also often reported; but in these cases the insanity is a discrete condition added to the feeblemindedness.

Feeblemindedness and insanity are by definition absolutely distinct conditions, feeblemindedness being the result of defective mental development, and insanity depending upon aberrant mental functioning occurring in an individual of any degree of mental development.

This absolute division between insanity and feeblemindedness is at the present time being carried even into the field of heredity. We have become accustomed to the thought that the neurotic diathesis is the inherited feature, and that extraneous conditions determine what form of neurosis, psychosis, or defectiveness manifests itself. Another possibility has been suggested, however, by the recently published pedigrees of feebleminded children, epileptics, and insane.[1] These pedigrees strongly suggest that similar defects run not only through fraternities, but also through succeeding generations of such families. Epilepsy and feebleminded-

[1] C. B. Davenport and David F. Weeks, M.D.: A First Study of Inheritance in Epilepsy. Eugenics Record Office Bulletin No. 4.

Henry H. Goddard, Ph.D.: Heredity of Feeblemindedness. Eugenics Record Office Bulletin No. 1.

Henry A. Cotton, M.D.: Some Problems in the Study of Heredity in Mental Diseases. Eugenics Record Office Bulletin No. 8.

A. J. Rosanoff, M.D., and Florence I. Orr, B.S.: A Study of Heredity of Insanity in the Light of the Mendelian Theory. Eugenics Record Office Bulletin No. 5.

ness occur frequently in the same families, but insanity is comparatively rare in the families where feeblemindedness predominates. In the light of the Mendelian principles feeblemindedness and epilepsy seem to behave similarly as hereditary factors, and insanity to follow a different course. Dr. David F. Weeks[2] writes: "It will be seen from the present evidence that epilepsy cannot be considered as a Mendelian factor when considered by itself, but that epilepsy and feeblemindedness are Mendelian factors of the recessive type, in that their germ cells lack the determiner for normality, or are nulliplex in character, while the tainted individuals, such as neurotics, criminals, sex offenders, etc., are simplex, and the normal duplex or simplex in character." Mr. C. B. Davenport and Dr. Weeks[3] write: "Three matings (insane with feebleminded or epileptic) yielded 19 offspring of which 15 grew up and are known, of these 9 were normal, 1 epileptic, 4 feebleminded, and 1 neurotic. Here apparently insanity and feeblemindedness are not due to the same missing factors, and so some normal children result."

In spite of the chasm which is daily growing wider between the scientific conception of feeblemindedness and insanity, there is a group of cases, which it is the aim of this paper to define and which may be considered as occupying the borderland, not between insanity and normality, nor between feeblemindedness and normality, but *between insanity and feeblemindedness.*

A typical example of this group is a little boy, nine years of age, who was brought some years ago to Professor Witmer for special training. It was my privilege to carry on the training for several months and my opportunities for observation were of the best.

He was a delicate, supersensitive boy, much too childish for his years, and of a confiding, loving nature. He was a marked contrast to that type of feebleminded child whose reactions are prompt and dependable up to a certain level and then cease,—that type whose abilities can be accurately guaged. He on the contrary impressed one as having much more mental ability than he could command. Though quiet and inert most of the time, he would occasionally surprise one by a remark indicating a high degree of intelligence. Though his speech was marred by an infantile stammer of a severe type, he formed complicated sentences and used the longest words without hesitancy. His most striking char-

[2] David Fairchild Weeks, M.D. The Inheritance of Epilepsy. Problems in Eugenics, page 78.

[3] C. B. Davenport and David F. Weeks, M.D. A First Study of Inheritance in Epilepsy. Eugenics Record Office Bulletin No. 4, page 10.

acteristic, perhaps, was lack of volitional ability. Left on the porch to play, he was found ten minutes later standing in the identical attitude; on another occasion he was standing with a group of people on a country road, as an experiment the others walked on without the usual "come on Johnny," and the boy stood just where he was, until some one went back for him. He would also sit at table without eating until started by a word of suggestion. The least suggestion was sufficient, but it was absolutely necessary. In regard to some other acts, suggestion did not have so desirable an effect, producing on the contrary marked negativism. Asked to touch his eyes and mouth he would do so; asked to touch his nose his hand would start in the right direction but reach perhaps the cheek or chin, never the nose. When questioned the boy would say that he had been asked to touch his nose, would agree that he had not done so, tears would fill his eyes, but the negativism would persist. When asked to lie down on his back, he would lie on his face. Even the promise of candy did not help him to stand on his toes at command; instead he stood on his heels. When told to touch with his tongue a stick of candy held a little to the right of his mouth, the perverse tongue would twist around toward the left. The child showed real distress, but seemed utterly unable to cope with the situation. This negativism varied from time to time and did not apply to all movements alike.

When directed to make unaccustomed movements, if negative movements did not occur, there was usually an inability to produce the movement from direction or imitation, an apparent lack of volitional motor control. The idea of the movement did not seem to be directly associated with the movement. Each new movement had to be passively performed for him daily, in some instances for weeks, before the volitional control was finally established. That this condition was not the result of mere lack of power of coördination was shown by the fact that very complicated movements were made quite easily at times when the child lost self-consciousness in action. Though he failed to stand on his toes at command, he was a sure footed climber over rocky hills, and was one day seen carrying, quite successfully, a large rocking chair up a long flight of porch steps because he thought that one of his teachers would like to sit in it.

There was clearly a defect in volition, showing itself in a lack of initiative, negativism, and poor volitional control. An allied condition was a marked echolalia. This was not the echolalia normal to an early stage of language development, that echolalia which occurs on account of the poverty of ideas and vocabulary

and which aids in the amassing of both. In language development the boy had long passed the echolalia stage, his vocabulary was large and possible associations were many. His was the echolalia which occurs when the attention span is limited to a very narrow, chiefly sensory sphere, when in consequence, the incoming impressions arouse no apperceptive mass and lead to no reaction other than a verbal expression of themselves,—the mental condition which obtains in the hyper-suggestible state.

There was in addition emotional instability. The child would at times become excitable, emotional and cry easily. At all times he was intensely sensitive, but there were periods when this would be greatly increased. He was of a very loving disposition and much more constant that most children. A long separation made no difference, he did not forget one individual for another.

Left to himself in a class room with a couple of other children he absorbed much of their instruction; he memorized many little verses by listening to the others recite them. At such times there was no negativism to overcome and achievement was easy.

The inertia, the negativism, the lack of volitional control, the echolalia, and the emotionalism all increased under any excitement, any conditions producing self-consciousness or demanding increased attention. At the close of a summer's training when the symptoms were much less pronounced, an unusual excitement brought them all back in full force. At such times the initial confusion led to a distinct narrowing of the attention span; the higher apperceptive processes and with them of course volitional control were for the time in abeyance and a state of hyper-suggestibility induced, in which all reactions were either positive or negative responses to sensory impressions, unmodified by apperceptive activity. Echolalia and either negativism or stupid helplessness reasserted themselves.

This group of symptoms, inertia coupled with a suggestibility expressing itself in both echolalia and negativism, is of course familiar enough in dementia praecox. It is by no means a complete picture of dementia praecox; and is, moreover, accompanied by such distinctly feebleminded symptoms as extremely defective articulation and infantilism. Children like the one described are in practice included in the feebleminded, not the dementia praecox group.

The symptoms described are, however, clearly dependent upon an aberrant functioning of the will and the emotions, or in other terminology, of the processes of apperception and emotion, *which processes at time function normally,* and therefore they can scarcely

be differentiated from insane symptoms. As they manifest themselves so very early in the child's life and interfere so gravely with its mental development they are considered developmental defects. Are they developmental defects, or are they insane traits appearing so early as to interfere with the normal progress of the the intellectual life? In either case they point out the complexity and diversity of the feebleminded condition, and suggest that the study of feeblemindedness from the Mendelian standpoint may prove to require the conception of many unit characters instead of one.

Such children do not form a very large percentage of the children at the Lincoln State School and Colony. Among 450 I have found but seven. One of these is a girl of seventeen who has never developed beyond the high grade idiot type, with a mental age of two. She talks much, distinctly, and in well formed sentences, but never in the first person unless much annoyed, when she swears a little. She never speaks to express a desire or a thought and never in response to any environmental condition. Her talk consists entirely of the repetition of sentences which have been addressed to her or spoken in her presence at some time in the past. At times two persons take part in this repeated conversation, the tone of voice and emotional expression of each being reproduced as accurately as are the words. No remark of her own is ever contributed. When addressed she makes no reply, but if one lingers near for a little while, he will hear his words repeated perhaps with a change of a word or two. "There goes a car down the road" was reproduced "There goes a cake down the road"; the command "Say,—1, 2, 3, 4, 5," was later repeated in full—"Say, 1, 2, 3, 4, 5." Her thought is altogether autonomous, and is auditory and kinaesthetic in character.

None of these seven cases has developed intellectually beyond the age of six years. Such children are little understood in institutions; they are the despair of their teachers who find it quite impossible to train them by the usual methods. The attempt to do so is soon abandoned and the children placed in a custodial ward where they give little trouble, being allowed to sink into the coveted apathy and inertia.

These cases do not present the usual picture of feeblemindedness, nor do they present such a picture with a later grafting of insanity, neither do they typify the insane child; they present the picture of defective, incomplete development, complicated from the very beginning by an aberrant functioning of certain mental processes still in course of development, which aberrant functioning doubtless interferes greatly with the developmental process.

REVIEWS AND CRITICISM.

Cerebellar Functions. By Dr. André-Thomas (of Paris). Translated by W. Conyers Herring, M.D. Nervous and Mental Disease Monograph Series No. 12. New York: 1912. Pp. 223.

It may be taken for granted that Dr. André-Thomas's monograph is an important contribution to brain anatomy and physiology, inasmuch as the editors of the *Journal of Nervous and Mental Disease* have chosen it for translation as number 12 of their Monograph Series. It was originally published in Paris by Octave Doin et Fils in 1910 under the title, La Fonction Cérébelleuse.

Dr. André-Thomas's first work on the cerebellum was printed in 1897 as a thesis with the title, "Le Cervelet, étude anatomique, clinique et physiologique." Since that time he has supplemented his researches by numerous papers on the cerebellum, medulla, cranial nerves, spinal tracts, and allied topics, most of them being published by the Société de Biologie. In the early days of his career he seems to have been plain Dr. André Thomas. Now that he has risen to eminence he has renounced his right to a Christian name in exchange for the luxury of a hyphen. This makes it somewhat confusing for the reader who tries to consult the works of Thomas, A., (or André-Thomas) by the aid of catalogue.

This present monograph on "Cerebellar Functions" belongs to a large class of treatises known to investigators in every branch of science,—treatises too important to be passed over, yet lacking in real distinction, and barren of suggestion for those who are doing pioneer work. Every neurologist sooner or later has to acquaint himself with the work of André-Thomas on the cerebellum. For their service in making it easy of assimilation, the editors and translator of the monograph deserve the thanks of all English-speaking neurologists, whose gratitude will be in no wise diminished by their sense of having obtained so little from its perusal. Had they been obliged to read it in French, they would have taken much more trouble to arrive at precisely the same conclusion.

Dr. Herring's translation on the whole is well done. One diverting mistake on the very title-page has eluded the eye of the proofreader, and it stands, "Ancient (!) Interne des Hôpitaux de Paris." On page 105 occurs the somewhat vague, not to say tautologous remark, "She was strong, robust, capable of lifting heavy burdens, but a feeble-minded imbecile." And what, in the name of geometry, are we to understand by this sentence on page 192,—"With this object the animal was placed upon a plank, movable around a horizontal axis, either parallel or at right angles to this axis"?

The bibliography at first glance appears to be of satisfying amplitude. Upon closer study it comes to resemble one of those old gardens in Rome, conceived upon a noble plan, and carefully tended for decades,

then allowed to sink into decay, and now needing to be replenished with new growth. Its gaps are conspicuous. For example, no mention is made of the extensive work on the cerebellum done by Dana, Mills, Weir Mitchell, and Spiller in America, or of that upon spinal cord tracts by Henry Head and his collaborators in England. The index is quite as faulty. One will look is vain for the words *anastomosis, anatomy, artery, blood, embolism, eyes, lesion, tumor, vascular,* and *vision.* It is true the word *hemorrhage* is present, and refers to page 101, where we read, "The symptomatology of hemorrhagic foci, or foci of softening of the cerebellum, is very slightly known for two reasons. The anatomical examinations are generally incomplete, and it is impossible to affirm that the symptoms are exclusively localized in the cerebellum." Dr. André-Thomas's own "anatomical examinations" are indeed "generally incomplete." Can he wish to be understood as holding that there is no clinical distinction between "hemorrhagic foci, or foci of softening"? Except for this one reference he leaves us to the assumption that the blood vessels of the cerebellum have no particular influence upon its functioning in health or disease. Yet it is an obvious fact that a goodly proportion of the cases with cerebellar symptoms occurring in neurological practice are cases of disorder of the vascular supply.

The diagrams are probably the best feature of the book. Many of the beautiful schematic sections of the cerebellum and spinal cord are original with Dr. André-Thomas, although some are borrowed from Ramon-y-Cajal. It is to be regretted that the pictures of dogs experimented upon are not photographs. The sketches are "from photographs," and are fairly well drawn. Considering the present perfection of the camera, it should have been possible to illustrate the paper with instantaneous photographs of animals, or even with whole series of photographs of the animals in motion, showing abnormalities of gait and station. The camera, moreover, will record symptomatic appearances which, escaping the notice of the investigator who makes the pictures, would naturally be omitted from his sketches, but which if preserved might prove of the highest significance to another person examining them from a different standpoint.

In spite of its shortcomings, the monograph, it may be repeated, is of importance to neurologists, and will also be useful as a reference for students of physiological psychology.

NEWS AND COMMENT.

Social Work of the Roman Catholic Church in France.

Last year Mgr. Touchet, Bishop of Orleans, said in a pastoral letter: "The question of workingmen's dwellings will shortly form part of our plan of operation. It is a national shame to allow these nests of fever and tuberculosis, for which so dear a rent is paid, to exist. When will the towns and cities that devote so much money to the erection of school-

palaces, comprehend that it is not enough to give light and air to children in school hours, if for the rest of the twenty-four hours they are shut up in pestilential holes. When will the State Savings Bank be authorized to lend money at three per cent to the Société d'habitations ouvrières a bon marché? Here then is a useful and honorable campaign waiting to be taken up by our men's associations." The Catholic Social Congress just held at Limoges has acted upon the bishop's suggestion, and has launched a movement for better housing which cannot fail to strengthen the position of the Church in France, as well as benefit the working people and their children.

Effects of Coffee Drinking.

To the Editor of THE PSYCHOLOGICAL CLINIC,

Sir:—

In the June, 1912, number of THE CLINIC, Mr. Charles Keen Taylor published an article on the "Effects of Coffee Drinking upon Children." The article showed that a certain group of children varied in mental ability, according to the amount of coffee consumed; the more coffee consumed, the less was the height, weight, strength and mental ability of the children, as measured by their school work. I wish to take exception to Mr. Taylor's conclusions, so far as to point out what seems to me to be the fundamental fact in the case; namely, that the coffee drinking and the deficiencies noted do not necessarily stand in the relation of cause and effect to each other, but rather that they are both effects of one or more underlying causes, such for example as the poverty, indifference, ignorance or alcoholism of the parent.

I have not the slightest doubt that Mr. Taylor could have found a similar relationship between coffee drinking and poor clothing, or betwen coffee drinking and soiled hands and faces, as he found between coffee drinking and subnormality in general. A parent who would permit his child to drink three or four cups of coffee per day is exactly the parent whose child, owing to bad environmental conditions, would not only be physically below the average, but also would be likely to make a poor showing in school work.

I am impelled to make this communication at a rather late day because of the citation of Mr. Taylor's figures in an article by Dr. Wallin on "Aspects of Infant and Child Orthogenesis," in the current (November, 1912) number of THE CLINIC. In this the author apparently accepts the conclusion that subnormality is *caused* by coffee drinking. This may be so, but Mr. Taylor's article proves only that they accompany each other. In fact, considering the probable home environment of the coffee drinkers, it seems to me that they make a remarkably good showing.

(Signed) CHARLES A. COULOMB,
Supervising Principal, Glenwood School,
Philadelphia.

November 25, 1912.

Health Supervision of Minnesota School Children.

The State Board of Health and the Department of Public Instruction of Minnesota wish to lend their aid to the schools of the state in promoting Health Supervision of School Children. To this end, the State Board of Health has engaged the services of Dr. Ernest B. Hoag, formerly of the University of California, to help Minnesota towns and cities to organize health work in schools.

Dr. Hoag will travel about the state, spending from one day to two weeks, as may be required, in the various places needing his services. It will be his purpose to demonstrate to towns, cities and counties that rational conservation of the mental and physical health of our school children is possible and practical with the means already at hand. Three plans will be proposed:

(1) Organization with a medical officer and nurse or nurses.

(2) Organization with school nurse or nurses only.

(3) Organization by the employment of a simple non-medical *health survey* on the part of the teachers only. Such a survey is provided by a series of questions based upon ordinary observation of physical and mental conditions. The outline for this purpose will be furnished by the State Board of Health—one for each child. No community need wait for the employment of a medical officer in order to begin sensible health observation of school children.

Dr. Hoag will be available for lectures on Child Hygiene, Medical Supervision, and related topics, for clubs, institutes, and various other organizations. The State Board of Health will maintain in its office in the Capitol Building, St. Paul, a *clearing-house* of information concerning child hygiene, medical supervision, the teaching of school hygiene, sex hygiene, and the like.

For further information address Dr. H. M. Bracken, Secretary State Board of Health, St. Paul, or

Mr. C. G. Schulz, Superintendent of Public Instruction, St. Paul.

Virginia Campaign for School Children's Health.

During seven years as professor of education at the University of Virginia, Mr. William H. Heck has been making a special propaganda for the health basis of education. For the session of 1911-12 he was granted by the Board of Visitors a leave of absence for further investigation in New York City, especially of the medical aspects of school hygiene. On his return to the University this session he organized a systematic campaign, representing the University and the State Departments of Health and of Public Instruction.

Professor Heck is now spending four or five days a week in the field, and on Saturdays at the University he is giving three hours of lectures in his M.A. course in the Principles of Education. His engagements are grouped in such a way as to cover as large a territory as

possible on one trip. The nucleus of a week's tour is generally an invitation to a teachers' institute, in connection with which the division superintendent plans a series of visits to strategic schools in his county or city. As only a third of the divisions in Virginia can possibly be visited in one session, care is taken to choose those where the superintendent and teachers are sufficiently interested in school progress to assure some application of the suggestions made.

Probably the most far-reaching phase of this campaign is the conference at teachers' institutes. Professor Heck will not go to an institute unless he can have a full morning or afternoon session—time enough to work out in detail several hygienic problems of the schools represented. For instance, he is trying to abolish the old-time water bucket with the common dipper and to substitute (a) the sanitary drinking fountain or spigot, or (b) the water cooler with individual drinking cups, each cup to be kept in a washable draw-bag, or to be protected by a metal top. Advice is often given as to the source of the water supply, emptying of coolers every afternoon, cleaning of coolers with boiling water every week, location of coolers, use during school hours, cleaning of cups and bags, etc. Another main subject for discussion is janitor service: by whom done—janitor, teacher, pupils; sweeping—windows down, floors or broom damp, use of wet sawdust or paper, use of floor oil; care of desks and seats—rubbing once or twice daily with damp cloth, avoidance of dusters, weekly cleaning of the inside of desks by pupils under teachers' guidance; use of footmats and scrapers; care of grounds and outhouses. Emphasis is placed upon the responsibility of the principal and teachers for the cleanliness of the school, no matter who is charged with the work of cleaning. Another subject is the recess: number and length of recesses, abolition of "keeping in" as a form of punishment; requiring pupils to be out in open air; necessity in most schools of putting up all windows during recess and flushing the rooms with pure air; organizing pupils into groups for games; rainy day recesses; time and place for lunches. These and similar discussions cover two hours, allowing a little time afterwards for conversation with individual teachers about their particular problems.

The second phase of the campaign is the talk of thirty to forty minutes to pupils above the fourth grade. The younger children have to be reached through parents and teachers. The subject for discussion is, "A Day of Health for the School Boy or Girl." The meaning of health is first explained, with stress upon feeling well and strong; healthy growth is shown to be needed for success in school and life and the control of growth for strength or for weakness is related to the daily life of the child. Then Professor Heck outlines on the blackboard his schedule for a day of health, emphasizing fresh air in school, at recess, during the afternoon, and at night, exercise and play, use of a toothbrush twice a day, and plenty of sleep.

The mothers' conference in the afternoon generally follows the plan

of the talk to children, thus attempting to unify the aims of mother, child, and teacher in enforcing the development of the proper health habits. The afternoon discussion is more extended, includes more subjects, and is enlivened by questions and applications from the mothers. Colds are the only contagious diseases dwelt upon, and they are given their full importance. The problem of home study arouses considerable interest and difference of opinion between home and school Professor Heck says that he seldom finds a group of mothers agreeing in any opinion regarding the physical and moral development of their children that is not sound and worthy of study by teachers.

Addresses are sometimes given in the evening before a general audience, but Professor Heck does not prefer these meetings in his campaign, because they are not as effective as informal conferences in the afternoon. They are valuable, however, in creating public sentiment, especially where some concerted movement is necessary to build or remodel a school building.

Professor Heck makes it a rule to inspect the schools visited and to note the hygienic needs, especially sanitation, drinking water, ventilation, cleaning, and use of window shades. Suggestions on these matters are made to principals, teachers, or parents and often are discussed with local trustees. Professor Heck is empowered to make official reports of conditions to the state departments of Health and of Public Instruction. In Orange County, a fairly typical Virginia county, preparations are being made for a comprehensive survey of the educational hygiene of all the thirty-six schools for white children. This survey will be made by degrees during the session, as Professor Heck's engagements elsewhere will allow. He will report on the location, building, equipment, sanitation, daily schedule, management, etc., of each school, and on the age, grade, height, and weight of each pupil. Then, through the philanthropic services of Drs. Flippin, Hedges, and Compton, of the University of Virginia, and Dr. Spencer, of Gordonsville, each pupil will be inspected by medical experts as to the condition of eyes, ears, nose, throat, teeth, heart, lungs, etc. This investigation will be unique in kind and extent, and the report will be published by the state department or the United States Bureau of Education, and widely distributed. It is suggested that those who wish to receive a copy of the report, send their names and addresses to Professor Heck.

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AGE AND PROGRESS IN A NEW YORK CITY SCHOOL.

By WILLIAM E. GRADY,
Principal Public School Number 64, Manhattan, New York City.

One can hardly face the problems presented by many of the large New York City schools without being convinced that in many respects these problems are unique, and that scant justice is done to those in control, if the efficiency of the schools is measured absolutely by standards obtained through investigations in cities with a radically different type of population.

I have been much interested in the recent discussions of school efficiency, as gauged by the factors of overage and retardation. The data contained in this article were collected in order to ascertain conditions in a particular New York City school that is considered sufficiently typical of schools with a large per cent of foreign-born pupils to warrant confidence in results obtained. In order that the tabulation of age and progress may have full significance, a brief resume will be given first of the city conditions and secondly of the local conditions, showing how radically our school population differs from that of many inland cities in which native English-speaking stock still predominates.

Within the past ten years New York City's population has undergone a marked change as regards its composition. The mere increase in size is secondary to the change in the character of the population, as shown by the following tabulation:

TABLE I. PERCENTAGE.

British Parentage.	*1910.*	*1900.*	*Gain or Loss.*
Ireland	562,503	727,464	*165,161
England-Wales	114,322	144,117	* 29,795
Scotland	38,414	43,610	* 5,196
Canada-Newfoundland	33,484	3,728	2,756
Australia-India	1,046	734	312
Totals	749,569	946,653	*197,084

* Denotes *Loss.*

Northwestern European.	*1910.*	*1900.*	*Gain or Loss.*
Germany-Luxemburg	607,088	799,981	*192,893
Scandinavia	93,965	70,829	23,136
France	24,726	25,950	1,224
Switzerland	13,629	13,343	286
Totals	739,408	910,103	*170,695
Southeastern Europe.			
Russia-Poland-Finland	724,112	307,683	416,429
Italy	532,064	229,347	302,717
Austria-Hungary	398,079	163,237	234,842
Roumania	32,210	10,499	21,711
Greece	8,745	1,309	7,436
Turkey	9,982	1,401	8,581
Totals	1,705,192	713,476	991,716
Mixed Parentage.			
Two foreign parents.....	24,703	.....	.....
One foreign parent.....	528,990	62,189	491,504
Totals	553,693	62,189	491,504
Both parents native.....	921,318	737,477	183,841
Negroes	91,709	60,666	31,043
China-Japan	5,994	6,638	* 644
Totals	1,014,021	804,781	214,240
Grand totals	4,766,883	3,437,202	1,329,681

The following comparative statements, made on the authority of Dr. Walter Laidlaw, executive secretary of the New York Federation of Churches, a bureau that has made this investigation its own peculiar problem, indicate not only the magnitude but also the heterogeneity of the city's population:

1—There are only 921,318 people in New York's population of 4,766,883, both of whose parents were native Americans.

2—New York's population of British parentage decreased in the years 1900-1910 to the extent of 197,084 people.

3—The population of immediate German ancestry decreased almost as much as the Irish, English, Welsh, Scotch, Canadians and other British put together.

4—While New York's population of northwestern European birth or parentage decreased, the population of Scandinavian parentage in New York was the only northwestern European group that made any substantial increase in the decade.

5—The increase of Russian, Polish and Finnish parentage exceeded the whole loss from British and northwestern European sources. The gain in people of Italian parentage was 302,604, or more than the whole population of Genoa; while the population of Austro-Hungarian parentage increased to the extent of 234,842, or more than the whole population of Prague.

6—In terms of percentage, the population of New York in 1910 was 15.72 per cent British, 15.19 per cent of Russian birth or parentage, 12.74 per cent German, 11.16 per cent Italian, 8.35 per cent Hungarian, 1.97 per cent Scandinavian, 13.49 per cent of mixed foreign or mixed native parentage, 19.33 per cent native whites of native parentage, 1.92 per cent negro and .13 per cent "colored".

7—In the classification of the mother tongue of people born in Russia, the Census Office found such an overwhelming number who gave Yiddish as the mother tongue, that Yiddish is being put down in the mother tongue tabulation of the population of New York for the whole Russian group, with Polish as the other leading language of the Russian-born population of the city. This fact tends to confirm the estimate recently made by Dr. Laidlaw of the number of Jews in New York City in 1910, placed by him at 1,265,000.

8—New York, which has an Italian population of 532,064, is second largest Italian city in the world, Naples having 564,000. New York's Italian population outnumbers either Rome (463,000) or Milan (491,460) to the extent of 50,000 approximately.

9—New York is the third largest Russian city in the world, being exceeded in population only by St. Petersburg (1,430,000) and Moscow (1,092,000). The New York Russian group outnumbers Odessa (405,041) by approximately 300,000.

10—New York has an Austro-Hungarian group of 398,079, or one-half the population of Budapest.

The foregoing data include both children and adults. The following tabulation refers to children of school age, assuming limits of 6-14 years:

TABLE II.

AGE-CLASSIFICATION, BOTH SEXES, AND SCHOOL ATTENDANCE (6-14).

(Census 1910—City Greater New York.)

	1-5	6-9	10-14	6-14
Native White, Native Parentage	149,465	85,327	103,000	188,327
Native White, Foreign Parentage	417,099	208,987	237,156	446,143
Foreign Born Whites	23,200	49,196	77,334	126,530
Negro	7,784	4,006	4,858	8,864
Other Colored	189	90	83	173
Total	597,737	347,606	422,431	770,037
Total in School	.....	299,840	398,175	698,015

The significance of these and of similar facts, with reference to the problem of the maximum uniform course of study under which our schools patiently labor, is obvious. Such data constitute the basic argument for effecting a change. I will simply state in passing that I consider such sociological facts a fundamental basis of a plea for a minimum course of study, giving a large percentage of unassigned time to be distributed at the discretion of local supervisors, such as district superintendents and principals, in the light of the needs of the particular locality. Dr. Ayres states that an investigation of 20,000 pupils in the New York City schools gave the following results:

TABLE III.

Nationality.	*Per Cent Retarded.*
German	16
American	19
Mixed	19
Russian	23
English	24
Irish	29
Italian	36

But do these figures measure fully the amount of retardation due to language, racial traits, etc., of foreign-born children? The span of school life of such children is relatively short. They pour into the lower grades in large numbers and unless unusual efforts are made to keep them in the grades, various causes, such as poverty, distaste for conceptual studies, desire to earn money, etc., cause them to drop out with great rapidity after the fifth year. Such elimination precludes their appearance in any study of retardation, based on pupils covering the entire eight years of the course. Moreover the fact of absence of retardation in the study of school careers extending through any given number of grades frequently indicates merely that despite authorized maximum courses of study and syllabuses, the subjects covered by such pupils and the degree of proficiency attained have been reduced to the lowest possible limits. In other words, in sections of the city in which schools deal with a large percentage of foreign-born pupils, frequent promotions, based on the mastery of the minimum amount of work in the sequential subjects, would tend to place pupils in grades which frequently are no real index of the scholastic attainments that one could reasonably demand under a maximum uniform course of study.

The following tabulation gives a more intimate view of the composition of the school population under discussion. The data were collected originally in relation to the problem of teaching English to the children of this group. On the basis of these and other facts, a request was made to the Board of Superintendents for additional time to be devoted to the teaching of English.

The general impression being that the schools of the section indicated below were really facing the problem of teaching a foreign language—namely English—to foreign-born children, and that therefore additional time was needed for the teaching of English in the schools of the district, a questionnaire was prepared and submitted to the teachers in the schools of the lower east side of Manhattan, extending from Houston Street north to Tenth Street, east of Second Avenue. On the basis of the information thus obtained, the tabulation on the following page was made. It was assumed that the three factors investigated—namely foreign birth, foreign tongue spoken by parent, and the study of Hebrew—were detrimental to a mastery of English.

Inasmuch as not only the nationality of the school population, but also the size and complexity of the school organization, as well as the grading scheme in use in the school under discussion are vital to any interpretation of age and progress data, it

TABLE IV.

Schools—P. S. No. 15, P. S. No. 20, P. S. No. 64 and P. S. No. 188 (Girls).
Grades—3d through 8th years, both sexes.

	P. S. No. 15	P. S. No. 20	P. S. No. 64	P. S. No. 188
Register.....	1910	1923	2168	1576
No. born in United States.....	1002	841	1102	946
No. born in Europe..	908 or 47%	1082 or 56%	1066 or 50%	630 or 40%
Russia—Poland.....	515	483	595	279
Austria—Bohemia...	342	145	308	325
Roumania.....	....	432	....	....
Other non-English speaking countries.	51	22	163	26
No. parents speaking foreign tongue....	1579 or 83%	1654 or 86 %	1712 or 78%	1434 or 90%
No. pupils who study Hebrew.....	1314 or 68%	1454 or 76%	1464 or 68%	939 or 70%

may not be amiss to outline briefly the organization of the school and also the grading system in effect during the current term.

TABLE V.

(a) Organization:

Number of Classes	76	
Dept. Classes		11
Regular Grades		54
E Specials		5
C		2
Ungraded		2
Kindergarten		2
Register	3090 boys	

The following tabulation shows number of pupils in various grades and per cent of total register:

TABLE VI.

Departmental Group	No. of Classes	Register	Per cent
8B's	3	134	4.3
8A's	4	135	4.3
7B's	4	147	4.8
Totals	— 11	—— 416	— 13.5

TABLE VI.—CONTINUED.

Departmental Group	No. of Classes		Register		Per cent	
7A's	4		160		5.2	
6B's	4		166		5.4	
6A's	5		220		7.1	
5B's	6		249		8.1	
5A's	5		234		7.6	
4B's	4		174		5.6	
4A's	4		175		5.6	
3B's	3		145		4.7	
3A's	4		178		5.8	
2B's	4		145		4.7	
2A's	4		157		5.1	
1B's	3		130		4.2	
1A's	4		192		6.2	
Totals	—	54	——	2325	—	75.3
E6B	1		34		1.1	
E5B	1		35		1.1	
E4B	1		39		1.2	
E3B	1		37		1.2	
E2B	1		26		.9	
Totals	—	5	——	171	—	5.5
C1	1		49		1.6	
C2	1		46		1.4	
Totals	—	2	——	95	—	3.
K1	1		37		1.2	
K2	1		26		.8	
Totals	—	2	——	63	—	2.
Ungraded I	1		11		.4	
Ungraded II	1		9		.3	
Totals	—	2	——	20	—	.7
		—		——		——
Grand totals		76		3090		100.

(b) Grading:

The grading scheme may be briefly summarized as follows:

Atypical children, after proper medical examination are segregated to form two ungraded classes.

Immigrant children who cannot speak English form the two C or foreign classes.

Overage foreign children of the various grades, usually late entrants handicapped by an inadequate lan

guage equipment, are segregated to form the E classes, one in each year from the second through the sixth.

Of the remaining normal children, the following classification is made: a unit class in each grade is made up of those who did exceptionally good work during the preceding term. These pupils remain in the class as long as they sustain themselves. If they fail to maintain the high standard of proficiency set by the group, they are replaced by more capable pupils.

A unit class in each grade is formed of the oldest pupils in the grade, the grouping being made on the basis of chronological age in the first four years and on the basis of physiological age in the fifth, sixth, seventh and eighth years. The grouping of the adolescents in these upper grades is suggested by Dr. C. Ward Crampton,* Director of Physical Training, and is made on the basis of such external signs as height, weight, hair, teeth, voice.

The remaining group of normal average children form the remaining classes in a given grade.

To illustrate, the seven classes forming the last half of the fifth year during this current term are as follows:

5B1—Adolescent class.

5B2—Bright class doing more intensive and more extensive work than the average class, but not necessarily covering a grade's work in two terms. The teachers' experience with these classes tends to confirm Dr. Ayres' conclusions "that our courses of study as at present constituted are fitted not for the slow child or to the average child, but to the unusually bright one" (Laggards in Our Schools, page 5).

5B3-5B6—Average classes.

E5B—Theoretically, a rapid advancement class devoting double time to sequential subjects of number and language, but practically made up of retarded overage pupils preparing to qualify to receive work certificates issued by the Board of Health.

*See Crampton, C. Ward. Influence of Physiological Age upon Scholarship. THE PSYCHOLOGICAL CLINIC, Vol. I.

The controlling idea in the foregoing grading scheme is homogeneity of the class group.

The form used to ascertain the age and progress of the pupils was suggested by the Bureau of Municipal Research of this city.

TABLE VII.

FORM 1. AGE AND PROGRESS CHART. CLASS 5A2. SEPTEMBER, 1912.

Yrs in School up to Sept 1912	6 to 6½	6½ to 7	7 to 7½	7½ to 8	8 to 8½	8½ to 9	9 to 9½	9½ to 10	10 to 10½	10½ to 11	11 to 11½	11½ to 12	12 to 12½	12½ to 13	13 to 13½	13½ to 14	14 to 14½	14½ to 15	15 to 15½	15½ to 16	16 to 16½	16½ to 17	17 to 17½	17½ to 18	18 to 18½	18½ to 19	Totals
0																											
½																											
1																											
1½										·																	1
2																											
2½									·																		1
3										·	·		··														4
3½								··		·				·													6
4							·	··	15	6	··	·															27
4½										··	··																6
5									·	·	··																4
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10																											
10½																											
11																											
11½																											
12																											
Total							1	5	18	13	8	1	2	1													49

The pairs of double-ruled lines indicating normal school age and normal chronological age for a particular grade occupy different positions for each grade as in the schedule given below.

TABLE VIII.

Grade	Horizontal	Vertical	Grade	Horizontal	Vertical
1A	0	6 to 6½	5A	4	10 to 10½
1B	½	6½ to 7	5B	4½	10½ to 11
2A	1	7 to 7½	6A	5	11 to 11½
2B	1½	7½ to 8	6B	5½	11½ to 12
3A	2	8 to 8½	7A	6	12 to 12½
3B	2½	8½ to 9	7B	6½	12½ to 13
4A	3	9 to 9½	8A	7	13 to 13½
4B	3½	9½ to 10	8B	7½	13½ to 14

A tabulation of the data obtained on the basis of such forms follows:

TABLE IX—AGE AND PROGRESS.

Public School No. 64, Manhattan (3002 boys).

Age*	Grade	Age: Less	Age: Normal	Age: More	Progress: More	Progress: Normal	Progress: Less
6 - 6½	1A	0	117	55	0	152	20
6½- 7	1B	7	64	73	26	63	55
7 - 7½	2A	11	62	85	15	81	62
7½- 8	2B	38	31	123	43	56	93
8 - 8½	3A	8	47	118	36	82	55
8½- 9	3B	12	26	166	68	42	94
9 - 9½	4A	7	29	131	61	67	49
9½-10	4B	10	34	167	74	37	100
10 -10½	5A	22	41	181	80	79	85
10½-11	5B	9	19	278	136	48	122
11 -11½	6A	9	26	190	73	76	76
11½-12	6B	12	21	175	81	31	96
12 -12½	7A	14	24	149	44	50	93
12½-13	7B	15	26	109	59	30	61
13 -13½	8A	12	22	99	55	30	48
13½-14	8B	16	28	84	75	30	23
Totals		202	617	2183	926	944	1132
				(3002)			(3002)

Group includes E Specials but excludes Kindergarten, C and Ungraded classes.

TABLE X—SUMMARY OF PRECEDING TABLE BY PERCENTAGES.

		Age: Less	Age: Normal	Age: More	Total
Progress...	Gain	3.7	3.3	23.8	30.8
	Normal	2.2	14.2	15	31.4
	Loss	.8	3.0	34	37.8
	Totals	6.7	20.5	72.8	100

*Age limits used in form suggested by Bureau of Municipal Research.

That the conditions shown by the foregoing figures are probably typical of schools dealing with the immigrant child in the congested area of the lower east side, is suggested by the figures obtained in a similar investigation conducted by Mr. Anthony Pugliese, Principal of Public School No. 34, Manhattan.

TABLE XI—AGE AND PROGRESS BY PERCENTAGES.

(Using same age limits as in preceding tabulation.)
Public School No. 34, Manhattan (2059 boys).

		Age Less	Normal	More	Total
Progress...	Gain	2	3	18	23
	Normal	4	20	16	40
	Loss	½	3	33⅓	37
	Totals	6½	26	67⅓	100

In order to compare the results obtained in Public School No. 64 with statistics already available, the following tabulations show the same data distributed in terms of other age limits:

TABLE XII—AGE AND PROGRESS.

Public School No. 64, Manhattan (3002 boys).

The distribution is made according to the following age limits, suggested and used by City Superintendent William H. Maxwell:

1st school year	6- 8 years of age.		5th school year	10-12 years of age.	
2d " "	7- 9 " "		6th " "	11-13 " "	
3d " "	8-10 " "		7th " "	12-14 " "	
4th " "	9-11 " "		8th " "	14-15 " "	

		Age Less	Normal	More	Total
Progress...	Gain	2.3	13.2	15.3	30.8
	Normal	1.3	26.8	3.3	31.4
	Loss	.1	22.2	15.5	37.8
	Totals	3.7	62.2	34.1	100

Tabulating again the data obtained in Public School No. 64 in terms of the age limits apparently used by Dr. Ayres in his investigation of 206,495 pupils in twenty-nine cities exclusive of New York City (see Russell Sage Foundation Pamphlet No. 108, "The Identification of the Misfit Child,")

1st	school	year	6- 8	years	of	age.	5th	school	year	11-12 years of age.
2d	"	"	8- 9	"	"		6th	"	"	12-13 " "
3d	"	"	9-10	"	"		7th	"	"	13-14 " "
4th	"	"	10-11	"	"		8th	"	"	14-15 " "

we have the following:

TABLE XIII.

		Age Less	Normal	More	Total
Progress	Gained	10.6 (6)	3.8 (3)	16.4 (2)	30.8 (11)
	Normal	18.2 (21)	8.1 (21)	5.1 (10)	31.4 (52)
	Loss...	11.7 (2)	8.1 (10)	18.0 (25)	37.8 (37)
	Totals.	40.5 (29)	20.0 (34)	39.5 (37)	100

Figures in parentheses were those obtained by Ayres in the investigation referred to.

Conclusions:

(*a*) If foreign birth, late arrival in this country, late entrance into school, inadequate language equipment, etc., are factors producing retardation, and if it be granted that the group investigated represents an extreme instance rather than the average of such retarding factors, it is fair to conclude that the school investigated is doing as well if not better than the average school in the twenty-nine cities investigated by Dr. Ayres, not only in preventing over-age but in accelerating over-age pupils so that they cover a maximum amount of work in minimum time; that there are almost twice as many pupils in each of the under-age and the over-age groups as there are in the normal group; that only 8 per cent of the pupils of normal age have made normal progress, a poor showing probably due to a course of study that is too difficult or too comprehensive for the normal pupils; that pupils of normal age and less than normal age have not made as good progress as those in the cities investigated by Dr. Ayres; that of the 39.5 per cent over-age, 21.5 per cent have made normal or better than normal progress; that a smaller percentage of over-age pupils have lost time than has been the case in the average city schools investigated; that a greater per cent of pupils under-age, normal and over-age than in the average city schools have gained time; that over-age and retarded pupils are not necessarily the same individuals; that over-age pupils are not necessarily an additional expense to the educational system, although their late entrance into the wage earning class may be an economic loss.

(*b*) There is urgent need of the general adoption of definite

age-grade limits to be used in making such investigations. As far as possible these age-grade limits should be based upon such age limits as are fixed by compulsory education laws, on "legal" limits set by City Superintendent William H. Maxwell and the "ideal" limits set by the Bureau of Municipal Research.

(*c*) That the use of the age-progress sheet, before and after promotions, gives the teacher and the supervisor specific information helpful in insuring the proper redistribution of classes and for critically examining the new classes, and on the basis of such investigation of the cases of extreme over-age or retardation making a redistribution of such pupils to classes for which they are fit.

(*d*) That such annual or semi-annual analyses of conditions would probably be the basis of increased confidence in the effectiveness of our work.

In concluding I wish to quote the words of Superintendent Maxwell:—

"But economic perils and racial differences are the teachers' opportunity. Here in this country are gathered the sons and daughters of all nations. Ours is the task, not merely of teaching them our language and respect for our laws, but of imbuing them with the spirit of self-direction, our precious inheritance from the Puritans; the spirit of initiative, which comes to us from the pioneers who subdued a continent for the uses of mankind; and the spirit of co-operation which is symbolized by and embodied in the everlasting union of sovereign states to promote the common weal. And as in my own city, I see the eagerness of foreigners to learn, and the skill and devotion of our teachers, I cannot but think that we are overcoming our almost insurmountable difficulties."

RETARDATION IN NEBRASKA.

By William Henry Stephenson Morton,
Superintendent of Schools, Ashland, Neb.

II.

From the preceding discussion it is evident that if our pupils advanced regularly through the grades, reaching the upper grades by the time they were thirteen years old, there would not be much elimination in any but the higher grammar grades. But we have seen from table III that many of these older pupils are in the lower grades; and as their tendency is to drop out at thirteen or fourteen, many of them leave before they finish the elementary school.

Since it is evident that many of the pupils are repeating their work, it is well to inquire in which grades it is occurring. Dr. Ayres assumes that most of the repetition occurs in the grades up to the fifth, and that there is none in the sixth, seventh, or eighth.

Blan finds this to be entirely wrong. He says,[15] "It was found, upon careful examination of the individual records of 3865 grammar grade pupils in five city school systems, that the grade distribution of non-promotions increases from the first grade till the eighth, the seventh grades in all five cities recording the highest percentage of retention." "The assumption then," he continues, that "very few pupils who reach the upper grades fail of promotion and repeat the work of the grade is wrong. The facts demonstrate that the retarding force in the grammar grades is certainly no less than in the primary."

Professor Keyes[16] in his investigation found the greatest number of arrests to be in the third, fourth, and fifth grades; although contrary to Ayres, he finds them occurring in every grade. The 683 cases of arrest studied by Keyes are distributed through the grades as follows:

TABLE XIII.

REPEATERS SHOWN BY GRADE AND SEX FOR A SCHOOL OF NINE GRADES.

Grades	1	2	3	4	5	6	7	8	9	Total
Boys.....	45	42	54	65	52	35	38	26	16	373
Girls.....	47	23	39	52	53	42	16	27	11	310
Total.....	92	65	93	117	105	77	54	53	27	683

[15] Blan, Louis B.: *The Incidence of Retardation*, p. 16.
[16] Keyes, Charles H.: *Progress Through the Grades of City Schools*, p. 17.

Is it not altogether probable that the pupil who repeats in the primary grades will do the same in the later grades likewise? It seems that for the same pupil retardation becomes all the more probable as he advances from grade to grade.

An investigation was made in the Ashland schools this year to determine in what grade the most repeating was done, with a view to finding out what grades were causing the most trouble to pupils passing through them. The following percentage for each grade was found by taking the total number of persons who had passed through any grade and multiplying it by two; this gave the total number of semesters that should have been spent in the grades by all pupils. The total number of semesters' work that was repeated in the grades was divided by the total number of semesters the pupil should have spent. For example, there were 197 who passed through the second grade; this multiplied by two gives 394, the total number of semesters that should have been spent in this grade. It was found that there had been 92 semesters of work repeated in this grade by all pupils. This divided by 394 gives 23 per cent for the second grade.

TABLE XIV.

PERCENT OF REPETITION FOR THE VARIOUS GRADES OF THE ASHLAND SCHOOL BASED ON THE TOTAL NUMBER OF SEMESTERS THAT SHOULD HAVE BEEN SPENT IN THE GRADE.

Grade.....	1	2	3	4	5	6	7	8
Percent.....	20	23	15.2	16.4	13	1.2	11.5	7

The data for the above table were obtained with considerable difficulty, for there were no definite records of the pupils on file. Each pupil was asked how old he was when he started to school, his present age, and in what grade he had repeated. Often the other pupils would help him out, or at times the teacher would remember, and in some cases the parents were consulted. Realizing that the data may not be quite correct, and recognizing that the number of cases studied was rather small, the results are yet worthy of notice.

The Ashland school seems to show a large per cent of non-promotions in the second to the fifth and in the seventh grades. The table would indicate that if the pupil succeeds in getting into the sixth grade he is almost sure of making that grade, for promotion is surest here. This is the same condition that Blan found to exist. The seventh grade proves to be another sifting place; but

it is a well known fact that if a pupil gets into the eighth grade, he will almost surely finish. The thought of finishing seizes him here, and he is carried over the goal by the combined forces of his own efforts and those of his environment.

Although many valid causes may be given for retardation, yet it appears that a great deal of it is due to the "lock-step" system of grading and promotion.

As was stated before, every class has its bright pupils, its average pupils, and its dull pupils. The school grade is not static. The individuality of the child soon begins to show and readjustment must take place. Some are promoted to more advanced grades, some are demoted to lower grades, while others are left to repeat the work of the grade. This problem is a large one and many extensive studies have been conducted upon it.

The old type of ungraded school has had its day. It flourished at a time when universal education was not popular. It most certainly had one feature that is not found in the graded school, that is, the instruction was individualistic. But as soon as we began to educate the masses, it became necessary from our administrative standpoint to teach them in groups. It soon became evident that this plan was economical, so it has remained as a chief characteristic of our educational system. It is due to this that the individual is lost sight of in the mass. In a sense he is left to sink or swim, and too often our school machinery forces him to sink.

It must be conceded that the graded school has been a potent factor in levelling distinctions of social rank. The boy (or girl) from the humblest home may be the brightest in his class. He is allowed to compete on equal grounds with the child from the home of plenty. His station in life makes no difference; it is worth against worth; and when the child from the home of limited means outstrips his more fortunate brother and receives his well earned honors, we see social forces working at their best. It is this aspect of the class or graded plan that gives it vitality.

It is with the hope that all of the best in the graded scheme can be retained and much of the value of the old individualistic plan added to it, that the various investigations have been carried on.

The aim of the public school must be the development of the fullest, soundest mental, moral and physical life of which the particular individual is capable. Every child must be given a chance to become all that he is capable of becoming. He must be made as efficient as possible.

We have noted above that there exists in all our schools a

great variation in the mentality of the members of any class, variation both above and below the average. Since this is known to be the case, we must provide for the exceptions. It is planned that the school may meet all conditions that might be classed as average, and it is for this class that it is doing the most, but it is not right that it stop here.

To be sure, much study and investigation, and considerable money and effort are being expended on the sub-normal class to raise them to a plane with the normal or average child. This is all well and good as far as it goes, but the work is not general enough. Too many schools give no attention whatever to this class, but let them drift along as best they may, eventually to sink and be lost in the undercurrent. Too often our schools tend to react harmfully upon certain children, generally of the sub-normal class. The teacher finds the pupil hard to deal with; he is slow, and always demanding her time. She becomes disgusted and decides that the boy had better not be in school, and soon, probably unconsciously, she is doing the things that tend to drive him away from school rather than to hold him. It is certainly unfortunate that this is the case, for it is from this class that the criminal comes. Society must in turn suffer for what it has positively done or wilfully neglected.

But what are our schools doing for the exceptionally bright pupil? We are glad to note that some few schools are doing excellent work for them, but in the main they are being overlooked, and no time is provided for them at all. It certainly ought to be as important for society to see to it that her gifted children as well as her deficient class, are developed to their fullest capacity, and yet we are spending many times more money and effort on the dullard than on the gifted pupil. The school certainly ought to be a place where the genius could go and find food for his thought and work for his hands. It always has been and always will be that society is led by men and women from the gifted classes, and we must see that the bright child is liberated.

If we look at him in most of our schools to-day, especially in Nebraska, we will find no special provision for him. We are under the "lock-step" regime and every pupil is taught to mark time. The same assignments and books are given to our gifted children as to our deficient. We are safe in saying that the "lock-step" system is not meeting the demands of these three classes of pupils as we find them in our schools.

Professor W. Franklin Jones summarizes twelve criticisms against the "lock-step" system as follows:[17]

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[17] THE PSYCHOLOGICAL CLINIC, Vol. V, No. 3, p. 81.

"I. It loses the individual in the mass.

"II. It does not classify students so that treatment may be readily modified to fit abilities.

"III. It puts the emphasis upon the weak rather than upon the strong.

"IV. It fails to work the strong students up to their reasonable limits.

"V. It does not make promotion feasible.

"VI. It does not facilitate well adjusted assignments of work.

"VII. It fails to emphasize the individual inequalities.

"VIII. It gives inadequate opportunity to regain loss due to absence.

"IX. It fosters failure among the less capable students.

"X. It is responsible for much elimination from school.

"XI. It easily works beyond a safe limit, the slow but persistent student who is given to worry.

"XII. It stands in the way of shortening the elementary school period for competent students."

There is at least one other criticism that can reasonably be lodged against this system,—that it tends to work the child most of his time in those subjects where he is weakest, and in the ones he dislikes most. For when the teacher finds him failing in a subject, she is sure to require him to do extra work in it, and often he is compelled to travel over an entire grade again to get a little more arithmetic, or grammar, or geography.

The criticisms above are all well taken and go to show that there are enough conditions within our schools themselves to cause all our retardation, not to mention the holding back of the student who could and would move rapidly.

It almost appears as if our pupils were being made to fit the schools, and not our schools the pupils. This must be changed. The individual must be freed. When our teachers awaken to the fact that they are teaching, in a sense, as many schools as they have pupils, we shall be in a position to do something. The pupils of our schools are like the different instruments of an orchestra. Every instrument is different from every other, and no two can be played upon alike if we would get harmony from them.

If the teacher would get the best work from the child, she must see him in all his aspects: socially, physically, morally, and mentally, for he is always presenting these four aspects of his nature. The four fields are open for adjustment. We must look to his social conditions,—the home, the street, the school associates, and so on. His physical welfare must be carefully

scrutinized. The school must come to his rescue with medical inspection. His mental and moral development must be planned for daily, and results tabulated.

The problem is a large one and much time and study is needed to adjust the school to the individual. There have already been many plans evolved with the purpose in view of overcoming some of the evils of the present "lock-step" system, and to free the individual. Some of these are known as the Cambridge Plan, Elizabeth Plan, Denver Plan, St. Louis Plan, Double Tillage System, Review Back System, Departmental Plan, and there are many others. This is all pointing in a hopeful direction, and shows that the school men and women are awake to the needs of this problem, and that efforts are being made to solve it.

The great problem then that is now facing us is "how to adjust our programs and policies so as to free progress through the grades for all the children of all the people."[18] We must use wisely what information and knowledge we now have upon the problem, and set about immediately to ascertain accurately those facts and truths that lie deeply hidden beneath our school machinery.

BIBLIOGRAPHY.

(Note: An excellent bibliography on retardation will be found in THE PSYCHOLOGICAL CLINIC, Vol. V, pages 117-119, at the end of Dr. W. Franklin Jones's article on "Grading and Promotion." The following additional references have been gathered by Mr. Morton. *Editor.)*

1. ALEY, ROBERT J.:—Care of Exceptional Children in the Grades. Proc. N. E. A., 1910, pp. 881-886.
2. BACHE, JAMES A.:—Delinquency and the Responsibility toward it. Proc. N. E. A., 1909, pp. 1001-1005.
3. BACHMAN, F. P.:—Elimination and Repetition. *Ed. Rev.*, 1910, p. 48.
4. BALLIET, T. M.:—Discussion. Proc. N. E. A., 1910, p. 800.
5. BRUMBAUGH, MARTIN G.:—Means of improving the Efficiency of the Grammar School. Proc. N. E. A., 1906, p. 108.
6. CARR, J. W.:—Discussion. Proc. N. E. A., 1910, pp. 798-800.
7. DYER, F. B.:—What Consideration should be given to the Sub-Normal Pupils? A Discussion. Proc. N. E. A., 1910, pp. 167-168.
8. EDITORIAL:—The Lock-step again. *Nation*, Vol. XXXV, pp. 298-299.
9. ELLIS, E. CASWELL:—The Percentage of Boys who leave the High School and the Reasons therefor. Proc. N. E. A., 1903, pp. 792-798.
10. ELSON, WILLIAM:—School Records, their Defects and Improvements. *Ed. Rev.*, Vol. XXXIX, pp. 216-227.
11. FALKNER, R. P.:—Retardation; Its Significance and Measurement. *Ed. Rev.*, Vol. XXXVIII, pp. 122-132.
12. FITZPATRICK, F. A.:—Departmental Teaching in Grammar Schools. *Ed. Rev.*, Vol. VII, pp. 439-447.
13. FRAZIER, C. R.:—At what should the Ungraded School aim? And for what should it provide? Proc. N. E. A., 1907, p. 316.
14. GASLING, T. WARRINGTON:—The Classification of Pupils. *Ed. Rev.*, Vol. XXXIX, pp. 394-400.
15. GOSSETT, J. O.:—Retardation in the Schools of Stockton, Cal. THE PSY. CLIN., Vol. IV, pp. 79-82.

[18] Keyes, Chas. H.: *Progress Through the Grades of City Schools*, p. 69.

16. GREENWOOD, J. M.:—Retardation of Pupils in their Studies. *Ed. Rev.*, 1909, p. 342.
17. GREENWOOD, J. M.:—Progress of Pupils through Elementary and High School. *Education*, Vol. XXIX, p. 276.
18. GROSZMAN, M. P. E.:—What Consideration should be given to the Subnormal Pupil? Proc. N. E. A., 1910, pp. 160-167.
19. GULICK, L. H., and AYRES, L. P.:—Medical Inspection of Schools. N. Y.: Charities Pub. Com., 1908.
20. HARRIS, W. T.:—Class Intervals in Graded Schools. Proc. N. E. A., pp. 332-346.
21. HARRIS, W. T.:—How the School strengthens the Individuality of the Pupil. *Ed. Rev.*, Vol. XXVI, p. 228.
22. JONES, W. FRANKLIN:—An Experimental-critical Study of the Problem of Grading and Promotion, THE PSY. CLIN., Vol. V, pp. 63-96, 99-120.
23. KEYES, C. H.:—Progress through the Grades of City Schools. Teachers College, Columbia University, N. Y., 1911.
24. KIRK, J. R.:—Should the School furnish Better Training for the Non-average Child? Proc. N. E. A., 1907, p. 221.
25. KIRKPATRICK, V. E.:—Emancipating the Individual. *Education*, Vol. XXX, pp. 1375-1386.
26. LAW, FREDERICK H.:—Age at which Children leave School. *Ed. Rev.*, Vol. XX, pp. 40-49.
27. LUCKEY, G. W. A.:—Can we eliminate the School Laggard? Proc. N. E. A., 1911, pp. 1046-1051.
28. MAXWELL, W. M.:—Reports of the New York City Schools, 1907, pp. 133-144; 1905, pp. 114-115, 426-434; 1903, pp. 110-117, 243-260.
29. MONTGOMERY, LOUISE:—The Soil in which Repeaters grow. *The Survey*, Vol. XXIII, pp. 77-81.
30. MOORE, MARGARET BROWN:—Inefficiency of Modern Schools. *Ed. Rev.*, Vol. XXXVIII, pp. 302-307.
31. PARKER, FRANK W.:—Departmental Instruction. *Ed. Rev.*, Vol. VI, pp. 431-442.
32. PARKINSON, W. D.:—Individuality and Social Adjustment as Means and Ends in Education. *Education*, Vol. XXIX, pp. 16-24, 104-112.
33. PAYNE, I. D.:—Retardation in the Schools of Palo Alto, Cal. THE PSY. CLIN., Vol. V, pp. 139-149.
34. SHEARER, W. J.:—School Children in Lock-step. *World's Work*, Vol. XIV, pp. 9254-9255.
35. SMITH, PAYSON:—Admitting that our Schools are Defective, who is Responsible for the Present Condition? Proc. N. E. A., 1907, p. 200.
36. STRAYER, G. D.:—Age and Grade Census of Schools and Colleges. U. S. Bureau of Education, Bul. No. V, 1911.
37. SWIFT, EDGAR JAMES:—Juvenile Delinquency and Juvenile Control. *Psy. Bul.*, No. VI, pp. 27-29.
38. VAN SICKLE, JAMES H.:—Provision for Gifted Children in Public Schools. Proc. N. E. A., 1910, p. 155.
39. VAN SICKLE, JAMES H.:—Grading and Promotion with Reference to the Individual Needs of Pupils. Proc. N. E. A., 1898, pp. 434-442.
40. WITMER, LIGHTNER:—The Study and Treatment of Retardation; A Field of Applied Psychology. *Psy. Bul.*, Vol. VI, p. 121.

LANGUAGE DEVELOPMENT IN 285 IDIOTS AND IMBECILES.[1]

By Clara Harrison Town, Ph.D.,

Director of the Department of Clinical Psychology, Lincoln State School and Colony, Lincoln, Illinois.

In L'Année Psychologique for 1908 there is an article by Binet and Simon entitled "Langage et Pensée". In it the authors have outlined what they call a new psychogenic method, a method which they judge can with profit be applied to the study of most mental phenomena.

The method is not so much an application of the psychogenic method to the study of the feebleminded as a study in psychogenesis by means of the feebleminded. Genetic studies of mental phenomena have heretofore used as subjects moral children. Such studies are more or less hampered by the fact that a normal child evolves so quickly that his mental level is in reality not a level at all, but a constantly ascending plane. The feebleminded, on the contrary, according to these authors, reach planes of mental development corresponding to certain stages of normal development and remain there. An average child of five years possesses certain mental capabilities plus an actively and constantly exercised power to acquire more. A feebleminded adult with the mental development of a child of five possesses similar mental capabilities without the power of further acquisition. He has reached a distinct level of development, a static condition, and may be studied at leisure.

By studying any mental phenomenon in groups of feebleminded individuals of each mental age from two years to that age period in which the phenomenon in question normally reaches full development, we should be able to gain a knowledge of the gradual evolution of that phenomenon.

In illustration of the method the authors present a study of the language development of several imbeciles, and reach some interesting conclusions; among them the following:

1. The auditory vocabulary based upon the power to understand spoken words is largely developed before the ability to speak is acquired.

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[1] Read at the meeting of the American Association for the Study of the Feebleminded at Vineland, New Jersey, June 4, 1912, and published with the proceedings of the Association.

2. The ability to repeat words precedes in development the ability to use them voluntarily and intelligently.

3. Language development reaches such a high level by the age of seven that any individual limited to the intelligence of that of a child of seven, is not in consequence of such limitation deprived of free and fluent use of language. This of course has a very distinct bearing upon recent theories of aphasia.

Following the lines of investigation laid down in this article we have attempted the study of language development in a number of idiots and imbeciles, charges of the Lincoln State School and Colony. Two hundred and eighty-five children form the basis of the study—50 idiots, 90 low grade imbeciles, 45 middle grade imbeciles, and 100 high grade imbeciles; all graded and classified according to the Binet-Simon scale.

Among the idiots five levels of language development were recognized: the understanding of gestures, the imitation of gestures, voluntary gestures, the understanding of words heard, sounds and attempts at articulation.

The idiots were subdivided into three groups: Seventeen low grade, 8 middle grade, and 25 high grade idiots. Of the 17 low grade children there were 2 who understood gestures, none who imitated them, 4 who made occasional use of them, 1 who understood a few words, and none who spoke so much as a single word. Two were able to laugh, 2 to hum, and the others to grunt, scream and cry only.

Of the 8 middle grade children, 2 understood gestures, 1 imitated them, 2 used them voluntarily, 3 understood a few words, 1 spoke a few words; 4 laughed, but the others only cried, screamed and made inarticulate sounds.

Of the 25 high grade idiots, 23 understood gestures, 20 imitated them at least occasionally, 22 used them voluntarily at least occasionally, 14 understood a few words, and 10 pronounced one or more.

Thus we find a gradual development of the faculty of expression through these grades of idiocy. In all three grades there were a few more children who used gestures voluntarily than there were children who imitated gestures. In all cases, however, in which this voluntary power develops before imitation it seems to be limited to movements of prehension or repulsion, it is the direct result of the pressing need and desire for expression.

The rudimentary attempts at articulate speech are evident in the highest grade idiots, and the most striking finding of all is that many of these children who can say nothing, or at the most, *yes*,

no, and *mama,* understand the names of many familiar objects and acts.

With the imbecile we reach the plane of articulate speech, and the problem of examining the language ability assumes a different form. The ability to gesticulate is now taken for granted and the points to be observed are:

1. The size of the auditory vocabulary.
2. The size of the spoken vocabulary.
3. Echolalia.
4. Power to repeat sentences.
5. Voluntary speech—words and sentences.
6. Defects of articulation.

Defects of articulation are in turn classified as follows:

1. Stammer, infantile.
2. Stammer, more persistent and more general.
3. Stutter.
4. Vagueness without distinct stammer.
5. An omission or slurring of letters and syllables.
6. An omission of words in sentences.

The vocabularies are designated as consisting of the names of a few objects and acts only, or as general. Of the 90 low grade imbeciles, 11 per cent show the limited auditory vocabulary, 15 per cent the limited spoken vocabulary, while the middle and high grade imbeciles all possess general vocabularies.

As such a summary statement gives no idea of the size and character of the children's vocabularies, a special study was made of the vocabularies of 25 low grade, 10 middle grade, and 10 high grade imbeciles. As it seems quite impossible to procure complete vocabularies of large groups of children, a comparative study was made on the basis of the power to use voluntarily 320 selected words. These 320 words were suggested to each child by means of pictures and objects. These were shown to the children and they were asked questions concerning them. Of course each child was taken alone and encouraged to talk as much as he would. As nearly all children like pictures, the whole thing became an enjoyable game. A record was kept of each of the 320 words used and also of all extra words used during the course of the experiment.

The average per cent of the 320 test words used by the groups grading in mental age from three to six shows a gradual increase as the mental age increases. The three year group shows an average

of 23 per cent, with a mean variation of 8.5; the four year group an average of 41 per cent, and a mean variation of 7.3; the five year group an average of 69 per cent, and a mean variation of 7.6, and the six year group an average of 86 per cent, and a mean variation of 2.9.

A similar gradual and regular increase is shown in the total number of words used (this total including the words used which were not among the test words). The average total for the three year group is 112, for the four year group 188, for the five year group 315, and for the six year group 363. The test was not carried on to the seventh year of mental development because the vocabulary at this level is so large that this test on the basis used is of no value.

An interesting point brought out by these vocabulary tests is the comparatively large vocabularies, 50, 75, or 100 words, possessed by the silent children, whom many among their attendants think mute.

The tests were also of inestimable value as a help in the analysis of articulation difficulties. One little boy is recorded as using 216 words, yet his speech without the guide of pictures is absolutely unintelligible. With the pictures one can grasp the faint resemblance to the word attempted, and thus gain a true conception of the child's distorted perception of the word. The phrase *perception of the word* is used designedly; probably no one realizes how intimate is the connection between the faulty articulation of a word and its auditory value to the child, and still further between both of these and the ideas they convey. Many children are absolutely incapable of sensing more than one or two sounds in a word. One little boy had learned the word *heaven,* or for him *hev.* When I asked him which of two blocks was the heavier he seemed confused. I said, "What does heavy mean?" He pointed upward. Several children when asked what they would do if on their way to school they feared they would be late, thought that *late* meant *lake;* one thought he would solve the problem by swimming across, another that he would hunt up a boat. These children habitually changed final *k* to *t* and *late* and *lake* are identical to them. Another boy when asked to write the word *tree* made the figure *3;* to him *th* is always *t.* Still another boy was asked to name a bottle which was held up for inspection. He said "It is medicine." As a further suggestion for the word *bottle* he was then asked "What is it in?" To this he replied, "Budesedine." The question was given too rapidly for him, and he was making an effort to repeat exactly what he heard, thinking it some new word, the name of the medicine.

The records show the occurrence of echolalia in 19 per cent of the 90 low grade imbeciles, all cases but two occurring in the 3 year group; in 2 per cent (one case) of the 45 middle grade imbeciles; and in 2 per cent of the 100 high grade imbeciles. These findings indicate that echolalia is a phenomenon generally outgrown by the end of the third year.

The power to repeat sentences is possessed by 52 per cent (47) of the 90 low grade imbeciles and by all the other children.

The ability to use sentences voluntarily appears in 72 per

LANGUAGE DEVELOPMENT OF IDIOTS.

	Low Grade	Middle Grade	High Grade
Total number	17	8	25
Understand gestures	2	2	23
Imitate gestures	0	1	20
Make voluntary gestures	4	2	22
Understand few words	1	3	14
Speak word or two	0	1	10

LANGUAGE DEVELOPMENT OF IMBECILES.

	Low Grade	Middle Grade	High Grade
Total number	90	45	100
Auditory vocabulary—general	89 per cent	100 per cent	100 per cent
Auditory vocabulary—limited	11	...	...
Spoken vocabulary—general	85	100	100
Spoken vocabulary—limited	15	...	...
Echolalia	19	2	2
Repetition of sentences	52	100	100
Voluntary sentences	72	100	100
Stammer	60	53	48
Stutter	3.3	4	3
Other defects of articulation	22	5	4

cent (65) of the 90 low grade imbeciles, and in all the other children. Again it seems that the ability to use voluntary sentences precedes that of repeating sentences, or at least is more general at an earlier age. Many of the children included in the 72 per cent are, however, capable of only very short sentences and badly constructed ones.

Of the 90 low grade imbeciles there are only 13 free from

VOCABULARY TEST—IMBECILES.

Case / Low Grade	Age	Mental Age	Number of Test Words	Percent of Test Words	Total Number Words Used	
1	7	3	30	9	34	
2	12	3	32	10	50	
3	10	3	40	12	152	
4	6	3	48	15	76	
5	7	3	53	16	57	Mental Age 3 Years.
6	6	3	60	19	138	
7	9	3	72	22	113	Av. % 23, M. V. 8.5
8	7	3	81	25	125	Av. total 112, M. V. 36
9	6	3	81	25	110	
10	7	3	84	26	151	
11	7	4	90	28	114	
12	7	3	101	32	137	
13	8	4	105	33	153	
14	11	4	115	36	136	
15	9	4	115	36	143	Mental Age 4 Years.
16	13	4	115	36	226	
17	11	4	117	37	162	Av. % 41, M. V. 7.3
18	17	4	121	38	159	Av. total 188, M. V. 45
19	28	3	128	40	148	
20	9	4	135	42	231	
21	26	3	139	43	145	
22	14	4	143	45	161	
23	14	4	151	47	166	
24	9	4	172	54	146	
25	14	4	195	62	293	
Middle Grade						
26	13	5	155	48	216	
27	11	5	202	63	358	
28	7	5	211	65	291	
29	8	5	213	66	316	Mental Age 5 Years.
30	9	5	216	67	288	
31	10	5	223	69	304	Av. % 69.4, M. V. 7.6
32	12	5	245	76	400	Av. total 315.5, M. V. 39.7
33	13	5	249	77	322	
34	11	5	257	80	280	
35	11	5	265	83	380	
High Grade						
36	11	6	250	78	293	
37	9	6	266	83	315	
38	12	6	271	85	352	
39	10	6	273	85	363	Mental Age 6 Years.
40	11	6	276	86	492	
41	14	6	276	86	296	Av. % 86.3, M. V. 2.9
42	10	6	278	87	346	Av. total 363, M. V. 42.8
43	13	6	284	88	380	
44	12	6	294	92	375	
45	9	6	299	93	420[1]	

defects of articulation; 85 per cent of these children either stammer, stutter, or slur their words or sentences. Sixty-two per cent (28) includes all those whose articulation is defective in the group of middle grade imbeciles, and 55 per cent all those in the group of high grade imbeciles.

If under faulty articulation we included all those departures from the absolute purity demanded by the highest culture, these percentages, of course, would be much higher. Those errors common to entire communities from which our children come do not indicate faulty development of function, but faulty speech models which have been correctly imitated. Therefore such errors are not included in our totals, which represent *faulty development of the ability to articulate.*

Sixty per cent of the 90 low grade imbeciles stammer, 53 per cent of the 45 middle grade imbeciles stammer, and 48 per cent of the 100 high grade imbeciles stammer.

The stutterers number 3.3 per cent (3) of the low grade imbeciles, 4 per cent (2) of the middle grade imbeciles, and 3 per cent of the high grade imbeciles. Stuttering is comparatively unusual among the feebleminded at the Lincoln State School and Colony and seems to have no age correlation.

Those who have defects of articulation other than stammering and stuttering, number 22 per cent in the group of low grade imbeciles, 5 per cent in the group of middle grade imbeciles, and 4 per cent in the group of high grade imbeciles.

In summing up the results of the investigation we find that our records show a distinct age correlation for the successive levels of language development, and just as distinct a correlation for the various speech defects, with the single exception of stuttering. Such results are indicative that this new psychogenic method will in time contribute data of much value to genetic psychology.

REVIEWS AND CRITICISM.

Youth and the Race. A Study in the Psychology of Adolescence. By Edgar James Swift. New York: Charles Scribner's Sons, 1912. Pp. x + 342.

The author of "Mind in the Making" has scored another triumph and has given us in "Youth and the Race" a psychologically truthful picture of the real boy. "The rôle which racial instincts play in the emotions, intellect, and will of children," says Professor Swift in his preface, "has been the subject of many investigations in recent years by those interested in the psychology of childhood. These studies, however, have had but slight effect upon the methods of the schools. This book is an attempt to show the possible application of some of these results to the education of children. . . . The author has tried to indicate how the schools may help to transform into intellectual and moral forces the racial instincts which, as manifestations of original sin, distressed our forefathers."

Professor Swift is a member of the faculty of Washington University in St. Louis, Missouri, and is therefore a citizen of the state where Mark Twain spent his own boyhood and amassed the experiences which he later wove into that unrivalled classic of adolescence, "Tom Sawyer". With admirable restraint Professor Swift forbears to mention "Tom Sawyer" or the other scapegrace "Huckleberry Finn," assuming tacitly that his readers need no introduction to those worthies. Very few, indeed, of the stories he tells to illustrate the child's appetite for adventure are taken from books. The greater number are clipped from New York and St. Louis newspapers, and although they are evidently embroidered by the hands of reporters who have not the thousandth part of Mark Twain's genius, the stories go to prove that the spirit of youth is springing to-day as abundantly as ever from the unquenchable source of the race-stream.

Professor Swift urges "the imperative necessity of creating an environment for the child which shall not only keep pace with his racial and neural growth, but which shall be freed from obstacles to growth. . . . One is often amazed at the difficulty of the tasks which children undertake. Their available energy seems inexhaustible when they have freedom to act and interact among themselves. . . enthusiasm frees the mind from restraints." He brings a grave accusation,—and who shall say it is not just?—against the public schools, and concludes by saying, "The racial and social instincts are exhaustless storage-batteries of nervous energy, and it is the direction of these forces rather than restraint which is needed in the schools. It is no idle charge that teachers do not know what they are trying to do. One needs but to read the pedagogical literature and attend the institutes to see how indefinite are their purposes. Vague phrases about mental discipline and moral training have long been the school-masters' chief asset. It is time for

them to take an account of stock and reorganize before the outraged public puts the schools in the hands of receivers."

A. T.

A Laboratory Hand-book for Dietetics. By Mary Swartz Rose, Ph.D. New York: The Macmillan Company, 1912. Pp. x + 127.

The interest of Dr. Rose's hand-book is by no means limited to the small group of students for whom it was intended. Among the topics with which the well informed person is supposed to be acquainted, the science of dietetics is rapidly taking a more prominent place. Nearly everyone has at some time been placed by his (or her) physician upon a diet restricted in one of its main constituents,—protein, fat, and carbohydrate. We hear of the "purin-free" diet for epileptics or for gouty people, and the "low-protein" diet for those suffering from intestinal disorders or incipient tuberculosis. We are advised to eat salads for the sake of the mineral elements contained in green vegetables, and to use brown rice and whole wheat flour rather than the common white varieties in order to secure more of the same mineral substances.

The fuel value, or "food value" of certain articles of diet is a phase very commonly heard and but little understood. Magazines and newspapers are urging women readers to regulate their household expenses so as to get the greatest "food value" for the outlay. How this is to be done is a question,—and to the housewives who resent being nagged by the public press it has become a fighting question. Dr. Rose's manual will be welcomed as illuminating a very dark region in many minds. The reference tables are so complete, and the directions so explicit, that anyone equipped with curiosity, persistence and elementary arithmetic can reduce an ordinary dietary to its units of fuel value, or Calories, and compare several dietaries as to nourishment and cost.

So far, so good. But having found what foods are cheapest and at the same time highest in Calories, the utmost common sense and discretion will be needed in making up an ideally efficient dietary. Pickled cucumbers contain one-third more Calories than does consommé and are vastly cheaper. Crystallized ginger yields about three times as much fuel value as roast chicken, and Calorie for Calorie the cost is about the same. Chocolate gives more than four times as many Calories as an egg, at less cost; while peanuts give one and a half times as many Calories as broiled lamb chops for one-third the price. At the prospect of a dietary controlled entirely by the factors of fuel value and cost, the sturdiest imagination may well grow faint.

Dr. Rose makes very clear the nature of a Calorie. She says, "Since energy is easily transformed into heat, and this form is readily measured, a heat unit, the Calorie, has been adopted as the most convenient measure of energy. One Calorie is the amount of heat required to raise one kilogram (2.2 pounds) of water one degree Centigrade, or one pound of water four degrees Fahrenheit. Expressed in terms of

work, it represents that required to lift one pound through the distance of 3087 feet or 3087 foot-pounds.

"The total energy value of each of the foodstuffs (proteins, fats, and carbohydrates) has been determined by burning it in a calorimeter in pure oxygen, under such conditions that all the heat evolved is taken up by water surrounding the vessel in which the combustion occurs, and the increase in the temperature of the water measured by a delicate thermometer. In the body, combustion of protein is not quite so complete as in the calorimeter, and there are usually some losses due to failure of complete digestion of each kind of foodstuff, so that the available energy is somewhat less than the total energy value. In a healthy human being, on an ordinary mixed diet, the fuel value of each foodstuff is on the average as follows: protein 4 Calories per gram, fat 9 Calories per gram, carbohydrate 4 Calories per gram."

The book is divided into three parts: I. Food Values and Food Requirement; II. Problems in Dietary Calculation; III. Reference Tables. There is an appendix on the "Equipment of a Dietetics Laboratory," with a list of the furniture and utensils for a class of thirty students. One of the most helpful sections is that upon the modification of cows' milk to a required formula, and others of great practical value are on the "Analysis of a Recipe," and "Scoring a Dietary." It is hardly fair, however, to select these chapters for special praise when the entire manual is on so high a level of excellence.

A. T.

NEWS AND COMMENT.

"A Year of Co-operative Service for the Schools of Philadelphia."

The Public Education Association has just issued under this title its thirtieth annual report which shows convincingly that large gains have been made in the public school system of the city and that on the part of the community there is a growing sense of responsibility and active interest in the schools.

The past year has been an eventful one for the public schools of the State of Pennsylvania. The School Code, which has been called "the most progressive single piece of educational legislation ever enacted," has made the reorganization of the schools both possible and necessary. To this law we owe the organization of the State Board of Education, the appointment of an executive secretary whose duty it is to investigate conditions in every city and hamlet, the creation of standard high schools and the development of a uniform course of study.

Even the largest cities, which have become districts of the first class, have made progressive strides toward modern equipment and administration. Greater Pittsburgh has placed her schools under one executive head, and has secured a Superintendent trained outside of the state to supervise the system on a new pedagogical and physical basis. In one year a careful survey of conditions in the old school districts of that

city has been made, the local school boards have been abandoned, $3,000,000 secured by temporary loan has been used in purchase of sites and erection of buildings. The School Board has spent half a million dollars during the last summer for immediate repairs, and has recommended four new high schools and ten elementary schools for 1913. For the first time a city of but slightly more than half a million inhabitants is willing to face a budget of over $8,000,000 to raise its school buildings, equipment, and teaching staff to the highest possible standard.

In Philadelphia progress has not been so radical, since the law of 1905, framed for this city alone, made possible the reorganization of the central Board of Education and the establishment of a wiser business management. During the last six years the City of Brotherly Love has made long strides in the rehabilitation of her schools. Under a progressive Superintendent of Schools, the Board of Education has constructed modern fire-proof buildings, organized an efficient system of evening schools, and abandoned local Boards of Education with their disintegrating power for the more modern method of organization under one central Board.

But public-spirited citizens, who under the leadership of the Public Education Association had bent every effort to bring about the passage of the Code, had done so in the hope that Philadelphia might gain a still more modern form of school organization. They sought three ends through the Code: first, the separation of the schools from the municipality as a financial unit; second, the centralizing of executive control under a staff of expert superintendents; and third, the organizing of legislative power under not more than four committees of the Board of Education.

Two of these steps have been gained, but the third remains to be accomplished. As a result of the former complex system of local school management the Board of Education has been divided into numerous committees with complicated powers, including both legislative and executive function. The Code still requires fifteen members on the Board, and these men divided themselves into eleven committees. These committees represent seventy-eight positions which the fifteen members of the Board must attempt to fill, with a resulting complexity of detail which cannot help hampering educational progress.

In spite of this handicap, however, in the year and a half which has intervened since the passing of the Code much distinctive progress has been made. The schools of the city have become an independent financial body with power to levy a separate tax and to borrow over $30,000,000 without recourse to the ballot. This has swept away the old system of control by Councils, under which this political body dictated the items of the school budget, and made it impossible to secure proper housing for the schools.

For the first time the Superintendent of Schools has become the real supervising head of all the schools of the city. Philadelphia was the latest of the large cities to appoint a school superintendent. Not

until 1883 did she have such an executive officer, and until this present year the high schools have been directly responsible to a lay committee of the Board, and have lacked the power which comes from unified method and standardized courses. Under the new regime district high schools have been placed in outlying suburbs, all have been raised to the first rank, with four years of study, and all have been given manual training and commercial courses as well as the usual academic preparation for college. For the first time it has become possible for the children of this community to secure a high school education without paying large annual sums for carfare, and wasting hours of time in stuffy street cars.

The recent action of the Board of Education in passing a $5,000,000 loan for the building of high and elementary schools is evidence of an immediate intention to perfect the physical plant and to place it upon a modern American basis, and it is hoped that the 15,000 children who are now either on part time or excluded entirely from school on account of inadequate facilities, may gain a decent seat in a decent school.

During this entire process of change the Public Education Association has lent persistent aid to the Board. Through co-operation with other social agencies, through public meetings, individual effort, and the work of organized committees, the needs of the schools have been brought before the public, and specific projects have been undertaken for raising the standard of education.

The Psychological Clinic

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INDIVIDUAL DIFFERENCES IN SCHOOL CHILDREN.

BY ELMER E. JONES, PH.D.,

Professor of the History and Philosophy of Education, Indiana University, Bloomington, Ind.

Until recently the interest of public education has been directed to the great average of childhood with little reference to the two extremes of the probability curve, one end representing defectives and the other end accelerates. It is obvious that methods of education have neglected, at one end of the curve, a certain percentage of individuals who have meagre inherent capacities, and who are eventually turned from our schools upon society, a prey to it, and a real drainage upon our resources. Such children are by no means being brought to a state of efficiency and self support by our public schools, nor are they given the training which will make them a social and industrial asset to the community.

On the other hand the accelerate, the pupil of brilliant mind, is equally unfortunate. He enters school with capabilities two or three times as great as the average child, and yet must be moulded into conformity with him. He is habituated and disciplined in the routine of the school adapted to the child far below him in intellectual capacity, and thus suffers retardation in his progress just as real and even more pathetic, than is experienced by his defective school mate. He is given little opportunity to grow to his full capacity, to develop clear up to his psychological and physiological limit. It is impossible for us to calculate at present by any statistical method at hand, how much society has really lost from the retardation of the brilliant child by our present system. Throughout the whole history of our public schools, youths of exceptional ability have been bored, dwarfed, atrophied, side-tracked, discouraged, and lost to society. It is at this end of the curve of mental ability that we should expect to find our leaders, and our best thinkers in every department of learning, provided there were given in our system of education the opportunity for such minds to develop freely and fully.

Many of the psychological measurements of children in the grades show that pupils sitting side by side in regular classes vary decidedly in ability. Recently forty-two children in a sixth grade were given a controlled association test consisting of forty words to be remembered. The distribution of their records may be seen from the following table. The words remembered are arranged for convenience into groups of five.

TABLE I.

Words Remembered	0 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40
Distribution of Pupils	1	3	4	10	15	4	3	2

This measure of the ability of these forty-two children with reference to associative memory shows that two individuals made a perfect score, three remembered between thirty and thirty-five words, while four remembered less than ten words, the largest number (fifteen), remembering between twenty and twenty-five words. In this mental test we have the whole range of ability from almost total failure to a perfect score. Yet these children day after day sit in the same classroom, are assigned the same tasks, recite the same lessons, pass through the same school routine, until by suggestion, imitation, and conformity in instruction, the weak ones are made weaker, because of the establishing of many bad habits, such as lying and cheating, and resort to strategy to present an appearance of intelligence; while those who can make a perfect score in such a test of native ability are also made weaker because their reactions and habits are made to conform to mediocrity, and bad habits, such as laziness, loafing, and cheating, are frequently established.

Another test was made upon forty children of a fifth grade to determine the individual differences in auditory reaction. Twenty tests on each child were taken in order that a fair average might be obtained from each, and in order that the first few trials might be thrown out, when the child was not yet familiar with the experiment. Table II shows the means and mean variations of the reactions of each child. A modification of the Bergstrom chronoscope was used for the tests.

This test measures the power of attention, quickness of perception, fatigue, the rapidity of the flow of the nerve current from

sensory to motor parts and out to the musculature, quickness of muscles to respond when reached by the motor current, etc. It is a very good test to determine quantitively individual differences in the capacity to respond quickly and efficiently to a given stimulus. The above table speaks for itself with reference to the several abilities of the individual children in this grade. The poorest record is that made by No. 27, whose average reaction for

TABLE II.

S	Mean	M. V.	S	Mean	M. V.	S	Mean	M. V.	S	Mean	M. V.
1	185.2	12.2	11	245.4	13.8	21	215.8	12.9	31	304.2	20.5
2	150.6	8.7	12	276.3	21.5	22	225.7	15.6	32	261.9	7.3
3	224.5	18.4	13	412.3	32.2	23	264.3	10.1	33	320.8	16.2
4	362.1	15.8	14	214.6	14.7	24	185.6	14.8	34	226.4	31.4
5	280.4	24.6	15	326.4	15.6	25	225.3	16.4	35	316.1	20.5
6	302.1	10.1	16	196.9	8.3	26	301.4	21.1	36	288.4	12.7
7	405.3	16.2	17	241.7	5.8	27	416.9	11.2	37	304.2	9.2
8	224.6	27.3	18	126.3	9.5	28	281.3	20.5	38	274.1	13.1
9	186.2	14.7	19	301.4	18.4	29	179.0	15.8	39	159.8	18.0
10	199.0	12.6	20	265.3	12.7	30	205.6	10.1	40	244.4	11.6

twenty trials is 416.9 with a mean variation of 11.2. It is probable, however, that No. 13 is equally bad because of the high mean variation. In the twenty trials the mean variation is 32.2. This shows extreme variability in the subject's capacity for definite action as a result of a sense stimulus. No dependence can be placed in this individual for regularity of action under standard conditions. It happens also that this record reveals the characteristic defect in this child's nature throughout, as discovered by consultation with his teachers and parents, and from the actual records of his achievement in school work.

A study of this table astonishes one by the individual differences found among the children of this one grade. Their motor reactability varies from the lowest to the highest as from 1 : 3½. If this be taken as a measure of attention, such variation in this mental trait is certainly significant for education. If one child's attentive power is double that of his mate, other factors remaining about equal, obviously they cannot long remain in the same school classification without injury to both. The table illustrates too the difference in regularity of performance as shown by the mean variations. A slow reaction is not necessarily a sign of stupidity or even of mental slowness, provided the reactions have a rather constant time and remain consistent throughout. But when the

variation from a mean begins to run high we at once suspect a weakness in attention, and a susceptibility to fatigue. The remarkable thing is that the school classifies children according to biological age, irrespective of the abilities shown in such a test. It is needless to say that the attempt to train children under such a classification is fruitless. This fact must be given as a cause of retardation, failure of promotion, irregularity, lack of interest, etc., as well as the much discussed factors of parental influence, community ideals, and bad environment.

By the use of a tachistoscope thirty-six pupils in the eighth grade of a public school were tested in visual memory. The instrument was so constructed that the subject sat in front of the eye piece and at a given signal the shutter was opened exposing to view ten familiar objects placed on a screen. The objects were arranged at random, though clearly within the range and focus of the eye, so that the subject could orientate the eye over them at will. At the end of a second and a half the shutter was closed and subject was asked to name all the objects he saw. Ten different screens were used with each child in the grade and the score kept for each test. The table below gives the result.

TABLE III.

S	Mean	M. V.	S	Mean	M. V.	S	Mean	M. V.
1	3.4	.8	13	6.4	1.2	25	5.2	.4
2	4.6	.3	14	3.5	.4	26	4.1	1.2
3	4.8	.8	15	2.8	1.8	27	6.3	.6
4	5.7	.2	16	4.9	3.1	28	5.3	2.1
5	6.1	.3	17	6.8	.5	29	3.5	.9
6	5.2	.6	18	4.1	.9	30	6.8	3.2
7	7.1	.3	19	3.2	.8	31	5.2	.3
8	3.4	.2	20	7.4	.1	32	4.6	.5
9	3.8	.7	21	6.1	.5	33	4.8	.7
10	5.1	1.3	22	5.8	.4	34	3.9	.6
11	2.6	1.4	23	3.7	.8	35	6.3	.8
12	4.9	.9	24	6.2	.4	36	5.7	1.1
							6.3	1.03

This test does more than merely test visual memory. It determines to some extent quickness of perception, facility in moving the eye rapidly from one object to another, accuracy in perceiving objects in the marginal field of vision, clearness of the visual image, etc. By such a test in ten trials one can determine pretty accurately whether the child is visual, or whether he depends upon some other sense for the impressions which he later organizes into an apperceptive background.

The table is rather significant. The lowest record is 2.6 and the mean is 6.3, while the highest is 7.4. It seems impossible that children presenting such great differences in visual memory should be assigned the same lessons, expecting them to perform visual tasks, at least, with any degree of conformity. When we find such a high degree of variation in visualizing as is shown in this group of children, and then when we see them definitely grouped for the performance of the same tasks, we ask how can this meet with the ideals of education in a democracy,—equal opportunity for all. The same stimuli may be given in the assignment of work for this group, but it is quite impossible to see what advantage there is in so doing. Teachers are usually ignorant of the simple facts shown in the above tables, and in educational practice in general no attention whatever has been given to the classification of children upon their various psychological abilities. Classification is largely based upon biological age. Suppose we give the above group of children a visual task suited to the median, it is still so far above the capacities of the lower ones that they cannot perform it; while it is so far below the abilities of the superior children that their powers are really atrophied in being required to perform it.

This same group of thirty-six children was tested for auditory memory. Ten lists of words, the names of common objects, were read to the class, and after the reading of each list, the pupils were asked to write down as many words as they could remember. Table IV shows the results. It should be said that the children in these two tests have the same numbers throughout, so that it is easy to compare individual records in visual and auditory memory by glancing at the results opposite the same number in each table.

We see here the same remarkable individual differences that were observed in the visual memory. The interesting fact is that there does not appear to be much correlation between the two sets of tests. Good visualizers are not necessarily good in auditory perceptions, nor vice versa. In fact, the actual correlation as worked out by the Pearson formula gives a negative result. These data would seem to indicate that each child early develops certain tendencies in his learning experiences, which are either visual or auditory, but seldom both. Learning becomes easy through one channel and difficult through the other. Whether this is due to inherent tendencies in the nervous system or whether it is due to the formation of habits, we are by no means able to decide from the data at hand for this particular group of children. The fact merely stands out definitely that within a group selected and

TABLE IV.

S	Mean	M. V.	S	Mean	M. V.	S	Mean	M. V.
1	5.2	.2	13	6.9	.4	25	4.6	.3
2	4.8	.7	14	7.4	.5	26	8.3	.5
3	7.1	.4	15	8.1	.6	27	7.1	.4
4	6.5	1.3	16	7.2	.6	28	6.3	1.1
5	7.8	.6	17	6.5	.3	29	7.8	.3
6	3.8	.6	18	9.2	.4	30	5.4	.5
7	8.5	.2	19	8.4	.8	31	4.1	.8
8	8.4	.5	20	5.3	.7	32	6.2	.7
9	6.8	.7	21	4.6	1.1	33	3.7	.5
10	5.2	1.2	22	8.5	.3	34	9.1	1.2
11	4.7	.5	23	3.5	.5	35	5.4	.3
12	3.8	.9	24	5.6	.4	36	6.2	.7

graded for educational purposes by the public schools, there are such great differences in these perceptive powers as to render the stimuli of the schoolroom inadequate to produce the desired results.

Fifteen children were selected at random from the fourth grade in the public schools of a large city and were tested as to the rapidity with which they could place all the blocks in the form board. (The type of board employed was that used by Professor Witmer in the Psychological Clinic at the University of Pennsylvania, for the determination of defectiveness.) Each child was given ten trials, and at each trial the board was turned at a different angle, in order to keep the child from learning definite positions for each block. The test showed the child's real ability to see the hole in the board of a definite shape, to perceive the corresponding block, and make the motor response necessary to place it in position. The table below shows the individual differences in skill in doing this task, and reveals something of the individual differences in practice or learning. For each child a short practice or learning curve is shown, and also the number of errors.

This test, like the preceding ones, deals chiefly with native powers, not with habits gained through education. The perception of form may have been cultivated, but the special task of perceiving a form, associating it with the proper hole in the board, bringing about a coördinated movement to place the form in the hole,—all this depends largely upon capacities that are free from the influence of training. Consequently it is a very good test of native ability for doing this special thing. The records are interesting,

TABLE V.

Subjects	1		2		3		4		5		6		7		8	
Tests		Errors		Errors		Errors		Errors		Errors		Errors		Errors		Errors
1	32.4	5	20.2	4	18.6	4	24.4	3	30.2	2	15.4	2	17.8	2	16.8	2
2	26.4	2	18.2	2	18.2	2	26.2	2	31.4	3	14.2	1	16.4	1	17.0	1
3	21.8	6	15.6	2	20.4	3	19.8	1	24.6	1	15.6	1	12.8	3	15.2	3
4	17.6	1	14.8	3	18.8	2	20.4	1	25.2	1	18.4	3	15.4	4	12.8	4
5	18.8	5	14.2	3	15.8	5	22.2	3	20.6	1	14.2	5	14.6	2	16.4	5
6	20.2	3	15.4	2	14.6	1	20.6	1	22.8	2	16.8	2	18.6	3	16.2	6
7	15.4	1	16.4	1	15.4	2	16.4	4	18.4	1	15.8	1	12.2	1	15.8	2
8	12.6	1	18.2	3	13.8	3	15.8	2	19.2	2	14.2	3	12.4	1	16.2	8
9	12.8	2	14.4	1	13.2	1	12.8	1	20.4	3	15.2	2	12.0	4	15.4	3
10	10.6	1	14.2	2	14.6	2	13.4	2	18.0	2	12.8	3	11.8	2	14.0	5
M	18.8		16.1		16.3		19.2		23.0		15.2		14.4		15.6	

Subjects	9		10		11		12		13		14		15		
Tests		Errors		Errors		Errors		Errors		Errors		Errors		Errors	
1	19.4	2	30.6	2	22.2	2	24.8	1	18.2	3	18.8	1	24.6	2	
2	17.8	3	28.4	1	18.6	1	18.6	2	18.4	2	18.2	4	25.4	2	
3	21.8	5	28.2	3	15.8	3	15.8	3	19.6	1	19.4	3	22.8	1	
4	20.4	2	31.6	4	17.8	2	20.4	1	20.4	2	20.0	2	30.2	4	
5	15.6	4	25.8	1	15.2	3	22.6	4	18.8	4	16.2	2	21.6	3	
6	18.4	3	27.6	2	15.0	4	18.2	1	16.2	2	14.4	1	20.8	2	
7	12.2	2	24.4	3	12.8	1	15.4	1	15.0	1	14.8	1	18.4	1	
8	15.0	5	20.8	2	14.6	2	20.2	2	21.2	3	16.4	2	16.8	3	
9	14.4	3	21.4	1	14.0	3	18.4	1	16.4	1	13.8	1	16.8	2	
10	14.2	2	19.6	1	19.0	4	22.4	2	17.2	2	14.0	1	17.2	3	
M	16.9		25.8		16.5		19.7		18.1		16.6		21.4		

showing great variation both in the initial efforts and also in the final efforts after a practice of ten trials. The initial efforts vary from 16.8 as a minimum to 32.4 as the maximum with a mean of 22.3, while the final efforts vary from 10.6 to 22.4 with a mean of 15.5. The test is fairly representative of a large number of school performances which are usually assigned to a class as a whole, irrespective of the abilities of the children. For example, the psychological process involved is closely related to that of reading or writing or drawing from a model, or many of the tasks assigned in the manual arts. It is clear that a classification of children on any other ground than that of efficiency in some such test as the above, would result in a large amount of the motor work of that class being a failure. It is curious that educators will go on, accepting the most miserable results in many fields of school work, without attempting to clear up the matter with psychological tests, making diagnoses of special cases at the two ends of the curve of efficiency, and reclassifying on the basis of the diagnoses.

Fifty-one children of the sixth grade were recently tested by the use of the Courtis test No. IV, which is a speed test for short division. This involves teaching and training,—certain definite drill and instruction in a process regarded as fundamental in arithmetic. It is fair to assume that in this class the process of short division had been emphasized for at least three years, and that the children represent fairly well an average American sixth grade. This test provides so large a number of easy problems in short division that no child can finish all of them in one minute. The record of each child can then be scored as to the number of problems attempted and the number of errors made. It is a direct measure of the efficiency of certain learned reactions in children, and shows distinctly the individual differences in this ability. In scoring this test Mr. Courtis says that the errors can practically be ignored because of the small number made. In fact there were none at all made by the fifty-one children, and we have only to consider the number of problems attempted during the one minute. The table below indicates the scores.

TABLE VI.

Number attempted	Below 15	15–24	25–34	35–44	45–54	55–65
Number pupils	1	8	20	18	2	2

It is obvious that in this ability, which is the result of education, the individual differences are great enough to warrant a reclassification. If three years of training in a task shows such extreme variation, it certainly is folly to perpetuate it. The child with the lowest score made about one-fourth as many points as the two with the highest, the latter two showing at least twice as much ability as the ones in the median group.

The above test shows just what has been found over and over again in many ways, *viz.*, normal children do not respond equally to the various stimuli presented to them, not because they are necessarily deficient, but because they are not adapted to respond to this special educational procedure equally. A class may be graded at the beginning of the year with reference to their several capacities to undertake the work of that year. This grading may have been made strictly on the basis of psychological tests, but by the end of the year the members of the class are so far separated from each other in the various abilities they have shown in their education, that it is again necessary to reclassify, if each child is to do his best work.

Ten girls were selected at random from the sixth grade and tested in reading ability. They were each given the same selection to read, a piece of descriptive prose which contained ten important facts to be remembered. The facts were not of equal importance, doubtless, but were of such a character that any one of them might stand out distinctly in the mind of certain individuals. The girls were graded on their ability by means of a score on each of the following:—expression, fluency, number of errors, and their ability to reproduce the thought.

Here is a test of ability which depends somewhat upon the training received in the schoolroom. Of course, native ability counts for much, too, but the manner in which a child in the sixth grade reads depends rather more upon the training received than any other factor, provided of course we are not dealing with defectives or feebleminded individuals. These children are apparently all normal, though there is considerable variation in the home training. The results shown in the table are of the same character as those brought out in the preceding tables. It is inconceivable that such individual differences should be found in normal children having had practically the same training for a period of years. It seems to indicate all too clearly that the teaching has fallen in some places on fertile ground, and in other places on decidedly stony ground. Instruction has not been adapted to the individual child, consequently there are normal individuals who are retarded in

reading and never will be able to read the printed page intelligently. They may struggle along and read in a half intelligent manner throughout their lives, but certainly the great world of thought in the literatures of the race will remain forever unknown.

TABLE VII.

Subject	Expression	Fluency	Errors	Thought
1	Fair	Read with difficulty.	7	Could only recall scattering thoughts.
2	Very good.	Read with great rapidity.	3	Retold the story very well.
3	Good.	A good deal of stoppage on difficult words.	15	Chief thoughts remembered.
4	Poor.	Read slowly, with great hesitation at times.	12	About one-half of story remembered.
5	Very poor.	Many words could not be pronounced at all.	10	Seemed to get no thought at all from passage read.
6	Excellent.	Very fluent, all words quickly pronounced.	0	Practically whole story retold very well.
7	Very good.	Read rather slowly but with precision.	2	Could only recall three out of ten of the main points of the story.
8	Fair.	Read with a very slow, drawling tone.	5	Remembered very little of passage read.
9	Good.	Read rapidly but repeated many words.	6	Recalled about one-half of what was read.
10	Poor.	Read very slowly; stumbled on hard words.	10	Practically nothing remembered.

Not only so, but they will not be able intelligently to grasp the easier reading matter in our current newspapers and magazines.

Such simple tests as are recorded above can be made in any school system, if it is desirable to duplicate these records. Many such studies are now being made, and the result is already proving fruitful. City superintendents and school administrators of all

sorts are awake to the growing problem of the individual child. We should not be teaching groups of children, but we should teach children; and superintendents are now fully aware of the folly of many of our recent pedagogical doctrines. Class instruction must be modified to meet the needs of individual children. Two elements are needed, and will come within the next decade, *viz.*, the psycho-clinicist, whose business it will be to measure the intelligence and physical ability of every child at least once a year; and the complete modification of the course of study so that the individual child will be completely cared for, whether he be sub-normal, normal, or accelerate.

CONSTRUCTIVE MORALS AND SCHOOL LIFE.

By Herbert F. Clark,

Principal Olive Special School, Los Angeles, Cal.

There is a great deal of talk nowadays about teaching morals in the public schools and of connecting in some vital way the work of the school with real life. There is a strong feeling that the school is an isolated factor in the real development of child life. The following incident is an illustration of how recreation, school work, morality and an element of business life all combined to produce a wholesome development in a group of wayward boys.

The group consisted of eighteen boys from the Olive Special School of the City of Los Angeles. The recreation was a two days "hike" to the top of Mount Wilson. The basis for moral teaching was the wayward conduct of three of the boys on that trip. The connection with school work consisted in those days being regular school days, with language lessons based upon the experiences of the trip, together with the geographical knowledge learned and the inspection of the Carnegie Observatory at the top of the mountain. The business element consisted in providing a fund to defray some expense that arose out of the trip, and the purchase of a money order to send away the amount.

Mount Wilson stands about twenty-five miles northeast of Los Angeles. It is necessary to take the interurban car to Sierra Madre at the foot of the mountain and then go by trail a distance of about nine miles to the top.

On the second day of January the boys mentioned above and I decided to make the trip to the top of the mountain and return the following day. These were regular school days, but some of us who are dealing with the cruder material of humanity believe that any activity in which boys may engage that is wholesome in character, and carried on under proper conditions, is as truly educative as the program of the schoolroom. In other words a school is made up of a group of children happily engaged in some wholesome activity directed by a teacher who loses herself, or himself in the spontaneous expression of the pupils. It is no crime in the Special Schools of Los Angeles for a teacher to take his group of boisterous boys and "hike" away to the hills, or to the beach, or

even turn out and have a good old fashioned game of ball right in school hours.

But to the trip,—we took the car to Sierra Madre and with our bundles of blankets and "grub" began our long climb. The ascent was highly interesting with the camping-out lunches and the night under the stars about half-way up. An early start enabled us to reach the top about eight o'clock in the morning. It was interesting to note that the boys most addicted to cigarette smoking became most fatigued on the trip. Now it happened that several of the older boys threw aside their luggage and hastened on ahead of some of the smaller and more heavily laden. I, of course, remained in the rear to see that none fell by the wayside. These older boys reached what is called the three-quarter house and exercising some of their criminal tendencies opened a door, entered the house and stole two revolvers and a piece of ham. Before I reached there I was met by one of the proprietors of the place who told me that somebody had broken into their house and taken those things, and that they were holding our boys for investigation. We had met a man early in the morning who had left the hotel at the top without breakfast and hence there was the possibility that he might have committed the burglary. The man from the three-quarter house admitted this, so we were rather chary about accusing our boys. When I and the "rear guard" reached the three-quarter house there was the rest of the group awaiting our arrival. They were somewhat uneasy but denied any knowledge of the burglary. Before long however two boys came to me and told me who the culprits were, and sure enough we found the missing articles where they had been "ditched" on the mountain side. One of the proprietors of the place gave me two dollars and a half to give the boys who had confided me the secret. I protested, but he was insistent and I accepted the money and later gave it to the boys. He was a deputy sheriff and could have arrested the boys and taken them into custody, but he was willing to leave the final disposition of the case to me. I told him I would take charge of it and bring the case up for consideration at school on the following Monday morning. We finished our trip, had a good time during the day and returned to the city that evening.

On the intervening Saturday I took the matter up with the head of our special school department. Aside from suggesting that he thought it best to settle such things outside of court, when possible, he left the matter entirely in my hands.

On Monday morning when I arrived at school the guilty boys met me with penitent spirit and tear bedimmed eyes and begged

for a chance to recompense the man on the hill for his expense and trouble. They said they would refund the money he paid out, and would pay him for any trouble he had been put to, and promised that they would be good in the future. I took the matter up with the rest of the class and we decided to grant the boys their request provided the penalty of "swats" should be added. This meant that the guilty boys must lean over a desk and allow each of the other boys to give them a hard "swat" with a long paddle. The "swats" were administered immediately to seal the bargain and the boys set about getting the money. This took two or three days. When that was done I put on the board the following letter, and for a language lesson required all the boys to write it with the understanding that the one best written should be signed by each one of us and sent with the money to Mount Wilson.

Los Angeles, Cal., Jan. 9, 1913

Mr. Geo. D. Kamphefner,
Mount Wilson, Cal.

Dear Sir:

We are enclosing the sum of $2.50 to reimburse you, in a measure, for the financial loss you suffered by virtue of the wayward conduct of some of our boys. We regret very much the trouble and expense to which you were subjected and deplore exceedingly the disgrace such conduct brought upon our school, and each of us individually.

We thank you for your patience and leniency in this matter, and shall hope to enjoy the trip again without such a needless embarrassment.

Sincerely yours,
(Signed) The Boys.

When the best letter was selected and signed by all the boys, we sent the guilty parties to the post office for a money order. This they obtained and returned to the school. The letter and order were then enclosed and the guilty boys sent to the post office with the letter.

The elements of educational interest to me in the experience were these: two of the boys showed their loyalty to the right ideals of citizenship when they came to me and exposed the guilty parties. It took considerable strength of character to break through the gang rules and subject themselves to the cry of "snitch!" One of these is an orphan boy who has sold papers on the streets of Los Angeles since he was big enough to carry them. He has grown up in the environment of the city streets and does not smoke cigarettes. He is an ambitious lad and says he is determined to get a college edu-

cation. He is the type of boy which the special schools of this city are saving to lives of usefulness and good citizenship. He has caught the idea already that the best citizen is he who is not afraid to expose wrong doing.

Again, the whole group saw before we were through with the case that whatever one or more of them did affected the reputation and welfare of the whole group. The whole school was disgraced. Their chances for another similar "hike" were jeopardized. Most of them were exposed as being willing to condone wrong doing, even if they did not actually participate in it. That lesson was brought forcibly home to them in the writing and discussing of that letter. The matter of settling the affair among themselves, administering their own punishment, getting together the money needed and closing the case up without throwing it into court, had a great moral weight.

There was also the educational side to the case,—for once at least the boys wrote a letter embodying good English and strong moral worth. The difficult words were discussed and their bearing on this case emphasized. Margins, proper spelling, punctuation and good writing were essential. A wholesome motive underlay the whole process.

The connection with real life lay in the fact that although the whole affair took place outside the schoolroom, and so far as the crime was concerned it came within the jurisdiction of the courts, yet it was all brought home to the school for adjudication. The adjustment involved several days, giving the boys opportunity to earn the money, and time to let the moral lesson of it all "soak in". In fact it involved quite an element of coöperating in that some of the boys "chipped in" a nickel or a dime; in one case two boys helped another shovel sand for "two bits," and when it came to a "show down" one of the boys had to borrow a dime to make up his share.

And finally, there is great educational value in the fact that a teacher can so lose himself in a group of children that the problem of discipline is taken from his shoulders and thrown upon the pupils themselves. It removes that nervous strain and burden of responsibility incident to punishing children. The offenses become offenses to the group and not to the teacher. The school becomes their school; its problems become their problems, and best of all they see in the school a type of the world at large where the individuals in the group become subject to the group as a whole, and where the conduct of each citizen bears a direct relation to the welfare of every other citizen.

CAUSES OF NON-PROMOTION.

By George L. Farley,

Superintendent of Public Schools, Brockton, Mass.

The following statistics show facts in regard to non-promotion of pupils in the Brockton Grade Schools in June, 1912. The idea of collecting this data originated in a suggestion on one of the cards sent out by the Russell Sage Foundation. No discussion of the matter was had with the teachers, and thus it was possible for all to act without restriction.

Below is a sample card:

Name .....

BROCKTON PUBLIC SCHOOL NON-PROMOTION CARD

.....School 191

.....Grade .....Parent

Residence .....

Was not promoted for the following UNDERLINED REASON:

INCAPACITY (MENTAL) PERSONAL ILLNESS

INDIFFERENCE IRREGULAR ATTENDANCE

PHYSICAL DEFECTS

.....Teacher .....Prin.

A card for each pupil not promoted is to be filled in and sent to the office of the Superintendent.

The data obtained made it clear that the division "Mental Incapacity" did not differentiate as fully as might be desired. The cards so marked were given to the school nurse, Miss Minnie A. Robbins, who on her visits to the schools subdivided the returns as shown in table II into heredity, incapacity, non-English speaking, immaturity.

Table I shows the number of non-promotions by schools, the percentage based on the June enrolment, and the numbers by

grades. The names of the schools are omitted as they shed no light on the facts. The total number and the percentage for the entire system are the most interesting facts brought out on this sheet. Varying numbers, however, indicate lack of uniformity in the

TABLE I.

Schools	Total not promoted	Per cent not promoted	Grades								
			1	2	3	4	5	6	7	8	9
A	25	.082	2	6	2		4	5	6		
B	29	.060					5	4	8	10	2
C	20	.057	1	2	4	4	4	2	2		1
D	18	.088	9	4	3	2					
E	20	.08	3	4	4		4	3	2		
F	1	.002	1								
G	6	.048	1			2	1	1	1		
H	2	.032	1	1							
I	6	.051		3	1	2					
J	38	.048	6	4	11	2	2	4	2	4	3
K	5	.058				3	2				
L	4	.03	1		3						
M	31	.066	6	7	7	4	7				
N	9	.021				1	3	1	2	2	
O	20	.147	9	10	1						
P	27	.069	8	3	2	2	1	3	2	6	
Q	5	.033	3		2						
R	6	.009	1		1		1	1	2		
S	11	.13	3		2	2	3	1			
T	62	.078	10	8	8	10	8	5	2	11	
U	8	.022	2			1	2	3			
V	1	.04		1							
W	4	.03	1	2		1					
X	4	.032	3			1					
Y	6	.046	4	2							
Z	4	.025	1	2	1						
AA	14	.155	6	6	2						
BB	0	.000									
CC	0	.000									
	386	.053	82	65	54	37	47	33	29	33	6

standards of promotion. They suggest also that in cases where numbers run considerably larger than the average, investigation might reveal causes which could be corrected. The places where these conditions exist are clearly brought out and a yearly investigation would show whether they are constant or variable.

Table II shows the numbers of non-promotions arranged by

reasons as determined by the teachers. In some cases teachers assigned more than one reason so that the total number will naturally be greater the number of non-promotions. Incapacity under the new sub-divisions indicates lack of ability to grasp the work of the grade. As non-English speaking children are taught in four

TABLE II.

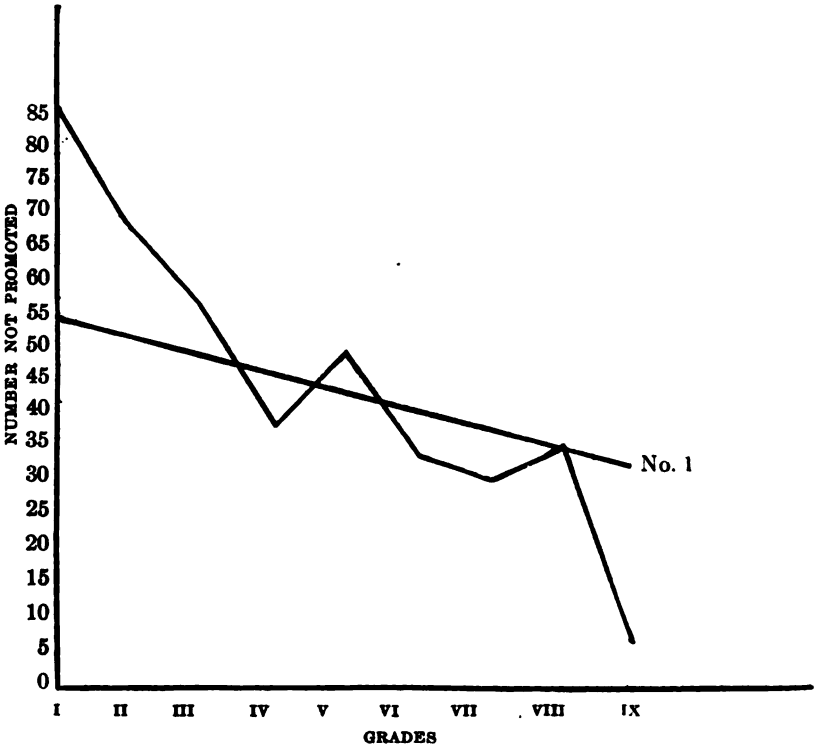
Schools	Mental Incapacity				Indif.	Pers. Ill.	Irreg. Attend	Physical Defects
	Hered.	Incap.	N–Eng.	Immat.				
A		1			1	3	3	
B		1			1			
C		1			2	2	2	
D	2	1					5	
E	2	14			16	2	4	2
F		14			8	1	5	5
G		12		4	3			1
H	6	5		3	5	2	3	1
I		1			3	2	4	
J	1	1					1	
K	1	3			3	3	2	1
L	5	10		5	17	5	8	3
M		3			3	1	1	
N	1	3				2	2	
O	1	6		8	7	5	1	3
P	2	8		2	4	7	6	2
Q		3			4	1	1	1
R		5	1	4		6	7	2
S		11			16	2	9	4
T	1	3		1	1	1	1	1
U	1	3			1	1	2	
V	9	28		8	15	11	8	1
W	1				1		2	
X		1	2	2	1	1	2	3
Y	3	5		2		6	1	
Z		1						
AA	3	5		1		1	1	
	39	149	3	40	112	65	81	30

centers in the system, the number of non-promotions for this cause would of necessity be small, the children being kept in these rooms until they are able to do regular grade work. Few, however, remain in these rooms for a period of one year.

The number who failed because of immaturity in a system which admits at five years of age seems relatively small. Why

so much indifference?—arouses in the mind the question whether it might not well be made a matter of investigation in the hope of removing the causes.

The following diagram shows the data plotted. The line marked No. I represents what would have been the result had the average percent of failures for the entire system held in all grades.



This would seem to indicate what has often been felt to be true, that in the lower grades, where children are young, teachers do not see the need of promotions, or the results of non-promotions, as do the teachers in the upper grades where the age enters as a very important factor.

Necessarily as the data cover but one year the conclusions to be drawn can be few, but if the practice is continued for a series of years, it may be expected that greater uniformity of standard will result, and corrections and improvements will be brought about in the present rather haphazard method of promotions.

MENTAL AND PHYSICAL EXAMINATION OF SCHOOL CHILDREN IN RURAL DISTRICTS.

By William H. Pyle, Ph.D.,

Assistant Professor of Educational Psychology, University of Missouri, Columbia, Missouri.

Much has been written in recent years about the examination of school children. In many places, especially in the larger cities, mental and physical examinations are common. These examinations are excellent as far as they go, but they seldom go farther than the compiling of statistics showing the percentages of different kinds of defects, the number of retarded and delinquent children, and similar data. In some cities, the examinations lead to a certain amount of segregation; defective and abnormal children are often put into special classes and given instruction suited to their individual needs. This is all, of course, worth doing, but it is only the beginning of what can come from the mental and physical examination of school children.

The writer wishes to suggest a much more extended use of such tests. In the first place, they should be universal,—should be given in every school in the country as well as in the city. Sufficient machinery is already provided in many cities for the tests, and could easily be provided in the rest. In the country the case is different. It will doubtless be necessary to pass special laws and set aside state appropriations to make the examinations possible there. Some such plan as the following might be practicable: every county should have, in addition to a county superintendent of schools, a psychological expert and a medical expert to supervise the mental and physical examinations respectively. There could doubtless now be found a sufficient number of physicians available to look after the physical examinations. There is not, on the other hand, a sufficient number of trained men to look after the mental examinations, but there are plenty of universities prepared to train them. There is, perhaps, no reason why the examining functions might not be combined in one man—a medical graduate with some psychological training. Such an official would render a county more valuable service than is now being rendered [illegible] nty officer. It is not our purpose to

work out the scheme in detail here. Only practice could determine what all the details should be. It might, for example, prove feasible for much of the examination to be done by local physicians, and perhaps a part by the teachers.

Not only should the examinations be universal but they should be made at definite intervals, and the results should be kept in permanent records, open to the public under certain conditions much as other public records are. These records should show the mental and physical conditions and growth of every child from the time of entering school till the course is finished. The child should not, perhaps, at least while young, know certain facts of the record, owing to the suggestive influence it might have on him. Older children might profit by some of the knowledge contained in the record. The records should also contain the results of the ordinary examinations given by the teacher. The fact that such data are to be placed on permanent record along with other matter obtained by careful tests would doubtless lead to more care and precision on the part of the teacher.

In the light of the results obtained from these tests and examinations the teacher could proceed with definite knowledge of the mental and physical conditions of the children who are being taught. At present, teachers are largely ignorant of the physical condition and mental ability of the children in their classes. What knowledge they have is too often the result of superficial observation combined with guess-work. A room-full of children is treated *en masse,* as being alike. If any differences are noted, the only thought is to send the child showing variations to a higher or lower grade. The possibilities of an improved procedure based upon fuller information have hardly been dreamed of. It has been frequently and justly remarked that the scientific breeder and stock-raiser has a much more accurate knowledge of his animals than the average teacher has of the children under his charge. The breeder finds it profitable to know something of the heredity of his animals. Some day perhaps even education will become scientific. May we not hope for a time when teachers will have an equally accurate knowledge of the children taught, and when the methods of teaching will be based on scientific facts, instead of on belief, opinion and mere tradition?

As to the nature of the tests that should be given, it is not necessary to go into details here. They should, on the physical side, reveal the condition of eyes, ears, nose, throat, teeth, and in fact as far as possible of every part and organ of the body. Weights and measurements should be taken, and the successive

examinations should show clearly the growth and development of the body. On the mental side, the tests should include such processes as memory, imagination, attention, discrimination and association. And, as throwing light on the condition of both the mind and body, tests showing the speed and accuracy of movement should be made. Not only should the examinations be made at definite intervals, but as already suggested certain facts should be ascertained and recorded by the teacher from the daily work and conduct of the children. This brief article is submitted in the hope that it may at least invoke discussion of the plan proposed.

BIBLIOGRAPHY OF SOCIAL SERVICE.

By Louise Stevens Bryant

In charge, Social Service Department, Psychological Clinic, University of Pennsylvania.

The following bibliography has been developed in connection with courses on social service in the Department of Psychology of the University of Pennsylvania. Its aim is to furnish a background for studying the heterogeneous mass of activities known as the modern "Social Service Movement". General biological, psychological, and sociological knowledge is presupposed; references avowedly technical in any of these subjects are mainly to the applied branches. Current references, in general omitted, may be easily secured by consulting the general bibliographical sources and periodicals in section V.

Aside from the more general references, the scope is quite obviously limited to the needs of the social worker in a psychological clinic, or in some closely allied work, such as special class visiting, school clinics, or hospital social work, though the last requires technical information on many other lines, such as baby hygiene, care of convalescents, etc. No attempt has been made to do more than indicate the existence of special problems met by the workers in philanthropic organizations, such as family rehabilitation, child placing, etc. Even the special references however, have been chosen largely as they serve to indicate the interrelation of the different activities to each other and to the large aims common to all.

The reasons for emphasizing the work of the public schools so strongly are as follows. The public school is supremely important as an agent of social progress because it is the only institution that has continuous responsibility and oversight of the great majority of individuals in society for any considerable period of time. Most of the functions of government are concerned with individuals only in exceptional and frequently abnormal circumstances; that is, existing for purposes of police protection, sanitation, of tax raising, they intervene in personal lives only in time of stress or violation of law.

Continuity is something that becomes greatly prized by social workers who are confronted by the baffling gaps in society's provisions for its members. We have for example, homes for cripples,

that will not take the child of backward mind; schools for the deaf frequently refuse cripples; the hearing mute finds no refuge anywhere; hospitals for the insane require that the inmate be over fifteen years; our houses of refuge turn the child out at twenty-one however pathetically a child and however much in need of fostering he still may be.

Our public schools have enough of these gaps: the law compels attendance for six years, and provides an eight year course; motor minded boys and girls wait from the kindergarten till the third or fourth grade before a few hours a week are granted when they can learn in their own terms; at fourteen they must begin again on an entirely different kind of road, or go forth to make bricks without straw, and so on. But these gaps are largely mechanical difficulties with solutions that are rapidly appearing. The school actually stands ready to sponsor every child from four until past college years, in all the phases and not merely at the crises in his life. No other agency is thus equipped to meet the needs of coördination, centralization, and continuity.

Many activities for social betterment inaugurated by private individuals and societies are passing or have passed under school control. We must know what our actual and potential resources are. In the schools facts are being discovered and principles worked out which are destined to modify profoundly our industrial, political, and legal organization. Governments and particularly school systems are not now merely conservative, waiting upon and following private initiative and research; with the growth of social consciousness is coming social action.

BIBLIOGRAPHY.

I. Modern Social Service Movement, General References.

(Sociological, Psychological, Economic, etc.)

1. Addams, Jane.—Democracy and Social Ethics. N. Y.: Macmillan, 1902.
2. Addams, Jane.—Spirit of Youth and the City Streets. N. Y.: Macmillan. 1912.
3. Addams, Jane.—Twenty Years at Hull House. N. Y.: Macmillan, 1910.
4. Allen, William H.—Efficient Democracy. N. Y.: Dodd, Mead & Co., 1908.
5. Allen, William H.—Civics and Health. Boston: Ginn & Co., 1909.
6. Allen, William H.—Woman's Part in Government whether She Votes or not. N. Y.: Dodd, Mead & Co., 1911.
7. Binet, Alfred.—Les Idées modernes sur les enfants. Paris: E. Flammarion, 1910.
8. Bliss, William D. P.—The Encyclopedia of Social Reform. N. Y.: Funk and Wagnalls Co., 1908.
9. Breckenridge, Sophonisba, and Abbott, Grace.—The Delinquent Child and the Home. N. Y.: Charities Publication Committee, 1912.
10. Byington, Margaret.—What Social Workers should know about their own Communities. N. Y.: Charities Publication Committee, 1910 and 1912.

11. CLOPPER, EDWARD N.—Child Life in the City Streets. N. Y.: Macmillan, 1912.
12. COOLEY, C. H.—Human Nature and the Social Order. N. Y.: Scribner, 1910.
13. ELLWOOD, C. A.—Sociology in its Psychological Aspects. N. Y.: D. Appleton & Co., 1912.
14. FISHER, IRVING B.—Report on National Vitality. Washington: Government Printing Office, 1908.
15. FOLKS, HOMER.—The Care of Destitute, Neglected and Delinquent Children. N. Y.: London: Macmillan, 1902.
16. FORBUSH, WILLIAM BYRON D.—The Coming Generation. N. Y.: D. Appleton & Co., 1912.
17. GEORGE, HENRY.—Progress and Poverty: An inquiry into the cause of industrial depression and of increase of want with increase of wealth. N. Y.: Doubleday, Page & Co., 1908.
18. GOLDMARK, JOSEPHINE.—Fatigue and Efficiency. N. Y.: Survey Associates, 1912.
19. HART, HASTINGS.—Preventive Treatment of Neglected Children. N. Y.: Russell Sage Foundation, 1910.
20. HART, HASTINGS.—Cottage and Congregate Institutions. N. Y.: Russell Sage Foundation, 1911.
21. HUNTER, ROBERT.—Poverty. N. Y.: Macmillan, 1904.
22. JAMES, WILLIAM.—Moral Equivalent of War: (*In* Memories and Studies) N. Y.: Longmans, Green & Co., 1911.
23. KELLY, FLORENCE.—Some Ethical Gains through Legislation. N. Y.: Macmillan, 1905.
24. KING, IRVING.—Social Aspects of Education. N. Y.: Macmillan, 1912.
25. LINDSEY, B. B., and HIGGINS, H. O.—The Beast. N. Y.: Doubleday, Page & Co., 1910.
26. MACKAYE, JAMES.—The Economy of Happiness. Boston: Little, Brown & Co., 1902.
27. MCMILLAN, MARGARET.—Labour and Childhood. London: Sonnenschein, 1907.
28. REEDER, RUDOLPH R.—How Two Hundred Children Live and Learn. N. Y.: Charities Publication Committee, 1910.
29. SMITH, WILLIAM HAWLEY.—All the Children of all the People. N. Y.: Macmillan, 1912.
30. SPARGO, JOHN.—The Bitter Cry of the Children. N. Y.: Macmillan, 1902.
31. WARD, LESTER.—Psychic Factors of Civilization. Boston: Ginn & Co., 1893.
32. WARD, LESTER.—Applied Sociology. Boston: Ginn & Co., 1902.

II. SOCIAL ASPECTS OF SCHOOL WORK.

(School Hygiene, Medical Inspection, Retardation, etc.)

1. AYRES, LEONARD P.—Open Air Schools. N. Y.: Doubleday, Page & Co., 1910.
2. AYRES, LEONARD P.—Laggards in Our Schools. N. Y.: Russell Sage Foundation, 1909.
3. AYRES, LEONARD P.—Age and Progress Study. N. Y.: Russell Sage Foundation, 1911.
   a. Identification of the Misfit Child.
   b. Relative Responsibility of School and Society for the Over-age Child.
   c. Money Cost of Repetition.
   d. Relation between Entering Age and Subsequent Progress.

   (These are serial publications of the Russell Sage Foundation under general caption of Health, Education and Recreation, Department of Education.)
4. BETTS, GEORGE HERBERT.—Social Principles of Education. N. Y.: Charles Scribner's Sons, 1912.
5. BRYANT, LOUISE STEVENS.—School Feeding: Its Organization and Practice at Home and Abroad. Introduction by Philander P. Claxton, U. S. Commissioner of Education. Annotated Bibliography. Philadelphia: J. B. Lippincott Co., 1912.

6. BURGERSTEIN, LEO, and NETOLITSKY, AUGUST.—Handbuch der Schulhygiene. Leipzig: J. A. Barth, 1912.
(Third edition. The classic and best general reference.)
7. CORNELL, WALTER S.—Health and Medical Inspection of School Children. Phila.: F. A. Davis Co., 1912.
8. CROWLEY, RALPH.—The Hygiene of School Life. London: Methuen, 1910.
9. CUBBERLY, E. P.—Changing Conceptions of Education. Boston: Houghton, Mifflin & Co., 1909.
10. DENNISON, ELSA.—Helping School Children. N. Y.: Harpers, 1912. (Bureau of Municipal Research.)
11. DEWEY, JOHN.—The School and Society. Chicago: University of Chicago Press, 1909.
12. DUTTON, SAMUEL T., and SNEDDEN, DAVID.—The Administration of Public Education in the United States. Rev. ed., N. Y.: Macmillan, 1912.
13. GARBER, JOHN.—Annals of Educational Progress. 1, 1910; 2, 1911. Philadelphia: J. B. Lippincott & Co.
(Series of hand books of encyclopedic character.)
14. GIDDINGS, F. H.—Social and Legal Aspects of Compulsory Education and Child Labor. Proc. of N. E. A., 1905.
15. GREAT BRITAIN.—Infant Care and Management in Public Elementary Schools. Government Circular (758). London: Eyre & Spottiswood, 1910.
16. GULICK, LUTHER H., and AYRES, LEONARD P.—Medical Inspection of Schools. Rev. ed., N. Y.: Russell Sage Foundation, 1912.
17. HALL, G. STANLEY.—Problems in Education. N. Y.: D. Appleton & Co., 1911.
18. HOAG, ERNEST B.—The Health Index of School Children. San Francisco: Whitaker, 1910.
19. KELYNACK, T. N.—Medical Examination of Schools and Scholars. London: P. King & Sons, 1910.
20. KERR, J. W., and MOLL, A. A.—Organization, Powers, and Duties of Health Authorities. Public Health Bulletin No. 54. Washington: Government Printing Office, 1912.
21. KING, IRVING.—Social Aspects of Education. N. Y.: Macmillan, 1912.
22. LONDON, UNIVERSITY OF, BIOMETRIC LABORATORY.—Health of School Children and Mental Characteristics.
23. MAXWELL, WILLIAM H.—A Quarter Century of Public School Development. N. Y.: American Book Company, 1912.
24. MONROE, N. Y.—Cyclopedia of Education. N. Y.: Macmillan, 1911-1912. 5 vols.
25. NATIONAL SOCIETY FOR THE STUDY OF EDUCATION.—Ninth Year Book. (Pt. I, Health and Education. Pt. II. The Nurse in Education.) Chicago; Univ. of Chicago Press, 1910.
26. PERRY, CLARENCE A.—Wider Use of the School Plant. N. Y.: Russell Sage Foundation, 1910.
27. RUSSELL SAGE FOUNDATION.—Medical Inspection Legislation, 1911.
What American Cities are doing for the Health of School Children. 1911.
Educational Survey of Greenwich, Conn., 1912.
28. WITMER, L., VAN SICKLE, J. H., and AYRES, L. P.—Provision for Exceptional Children in Public Schools. U. S. Bureau of Education. Bulletin, 1911, No. 14; Whole number 461.

III. MENTAL DEFECTIVES.

(School and Community Problems.)

1. BARR, MARTIN W.—Mental Defectives. Philadelphia: Blakiston, 1904.
The Criminal Irresponsible. *Alienist and Neurologist*, Vol. XXX, No. 4, 1909. (St. Louis.)
2. GREAT BRITAIN.—Report of the Royal Commission on the Feeble Minded in Great Britain, 1908.
(Mental Deficiency Bill 1910, 1911. Presented by Mr. McKenna to Parliament, 1911.)
3. HOLMES, ARTHUR.—Conservation of the Child. Philadelphia: J. B. Lippincott Co., 1912.

4. LAPAGE, C. P.—Feeble Mindedness in Children of School Age. Manchester: University Press, 1911.
5. MOORE, ANNE.—Feeble Minded in New York. N. Y.: Charities Publication Committee, 1911.
6. TREDGOLD, A.—Mental Deficiency, Amentia. London: Bailliere, 1908.
7. WITMER, LIGHTNER.—The Special Class for Backward Children. Philadelphia: Psychological Clinic Press, 1911.

IV. EUGENICS, EDUCATION WITH REFERENCE TO SEX, THE SOCIAL EVIL.

1. ADDAMS, JANE.—A New Conscience and an Ancient Evil. N. Y.: Macmillan, 1912.
2. DAVENPORT, C. B.—Heredity in Relation to Eugenics. N. Y.: Henry Holt & Co., 1911.
3. DOCK, LAVINIA T.—Hygiene and Morality. N. Y.: Putnam, 1910.
4. DUGDALE, R. L.—The Jukes. N. Y.: Putnam, 1910. (Fourth edition.)
5. ELLIS, HAVELOCK.—Sex in Relation to Society. Philadelphia: F. A. Davis Co., 1911.
6. ELLIS, HAVELOCK.—The Task of Social Hygiene. N. Y.: Houghton Mifflin Co., 1912.
7. FOREL, A. H.—The Sexual Question. (Tr. from the French.) N. Y.: Rebau, 1908.
8. HENDERSON, CHARLES K.—Education with Reference to Sex. Nat. Soc. for the Study of Educ. Eighth Year Book, 1909. Chicago: University of Chicago Press.
9. KELLICOTT, W. B.—The Social Direction of Human Evolution. N. Y.: D. Appleton & Co., 1911.
10. LONDON, UNIVERSITY OF, BIOMETRIC LABORATORY,
Studies in National Deterioration. London: Dulau & Co., 1911.
I. Heron—(a) Fertility and Social Status. (b) Influence of Unfavorable Home Environment and Defective Physique on the Intelligence of School Children. (c) Health of School Children and Mental Characteristics.
II. Schissler and Elderton.—Inheritance and Ability.
11. MOLL, ALBERT.—The Sexual Life of the Child. N. Y.: Macmillan, 1912. (Translation from the German by Dr. Edward Paul, with an Introduction by Edward L. Thorndike.)
12. NEARING, SCOTT.—The Super Race. N. Y.: Huebsch, 1912.
13. SALEEBY, C. W.—Parenthood and Race Culture. N. Y.: Moffat, Yard & Co., 1910.
14. SYMPOSIUM.—Sex Education. *Journal of Education.* May 15, 1912. (Boston.)
15. THOMPSON, ARTHUR J.—Heredity. N. Y.: Putnam, 1909.
16. WALLIN, J. E. W.—Aspects of Infant and Child Orthogenesis. THE PSYCH. CLINIC, Nov., 1912.

V. GENERAL BIBLIOGRAPHICAL AND PERIODICAL REFERENCES.

1. CHILD, THE.—Published monthly by John Bale, Sons & Danielsson, Ltd. London. Edited by T. N. Kelynack, M.D.
(Probably the most authoritative journal on child welfare in existence.)
2. CHILD LABOR COMMITTEE (National).—Child Labor Bulletin.
Vol. I, No. 1. Proceedings of Eighth National Conference, 1912.
3. CITY SCHOOL SYSTEMS.—Current reports of superintendents.
4. EDUCATIONAL SOCIETIES, Reports of,—
National Education Association, 1910, 1911.
New York Public Education Association, 1911.
Public Education Association, Philadelphia, 1911.
Home and School League, Philadelphia, 1911.
Boston Home and School Association, 1911.
American School Hygiene Association, 1910, 1911, 1912.
5. EUGENICS CONGRESS, (International).—Proceedings of first meeting, July 1912, London. Eugenics Educational Society. London.
6. EXCEPTIONAL CHILDREN, NATIONAL ASSOCIATION FOR THE STUDY OF,—Proceedings, 1911 and 1912. Plainfield, N. J.

7. FEEBLE MINDED, NATIONAL ASSOCIATION FOR THE STUDY OF,—Proceedings, Vineland, N. J., 1912.
8. FABIAN SOCIETY.—What to read on Social and Economical Subjects. London: King & Sons, 1910.
9. GREAT BRITAIN.—Annual Reports of Chief Medical Officer. London: 1909, 1910, 1911.
10. INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY, TRANSACTIONS, —Washington, D. C.: October, 1912.
    (Subscription only. Announced by John S. Fulton, Secretary-General, Senate Annex, New Jersey Ave. and B St., N. W., Washington, D. C.
11. JOURNAL OF EDUCATION.—Boston, weekly.
12. JOURNAL OF EDUCATIONAL PSYCHOLOGY.—Baltimore, monthly.
13. PEDAGOGICAL SEMINARY.—Worcester, Mass.
14. PENNSYLVANIA SCHOOL CODE.—Harrisburg, Pa., 1911.
15. THE PSYCHOLOGICAL CLINIC.—Philadelphia, monthly, excepting July, August and September.
16. PSYCHOLOGICAL INDEX.—Issued yearly by Psychological Review Co., Baltimore, Md.
17. REYNOLDS, JAMES BRONSON.—Civic Bibliography for Greater New York. Survey Associates, Inc.
18. RUSSELL SAGE FOUNDATION PUBLICATION.—Survey Associates, Inc. (Formerly Charities Publication Committee.) New York City. About thirty books during the years 1908-1912, on nearly every phase of the modern Social Service Movement.
19. SCHOOL BOARD JOURNAL.—Milwaukee, Monthly.
20. SEX EDUCATION.—Bibliography, *see* Section X of Psychological Index, 1911.
21. SURVEY.—N. Y. Survey Associates, Inc., Weekly.
22. UNITED STATES BUREAU OF EDUCATION.—
    1. Bibliography of Child Study (Cov. decade periods).
    2. Bibliography of Education. Published yearly.
    3. Commissioner of Education. Washington, D. C. Published yearly.
    4. Monthly record of Current Educational Publications.
       (Library Circulars issued monthly. Begun Jan. 1912.)
    5. Statistical Abstract of the United States. Published yearly.
    6. Weekly Legislative Circular. (Begun January, 1912.)
23. WOOD, THOMAS.—Bibliography on Education and Physical Education. New York: Teachers' College, Columbia University, 1911.

NEWS AND COMMENT.

Fourth International Congress on School Hygiene.

The Fourth International Congress on School Hygiene will be held in Buffalo, New York, August 25 to 30, 1913. The three preceding congresses were held in Nuremberg (1904), London (1907) and Paris (1910). Readers of THE PSYCHOLOGICAL CLINIC desiring full information about the congress, its organization, program, etc., may address the Secretary-General, Dr. Thomas A. Storey, College of the City of New York, New York, N. Y.

INDEX OF NAMES.

Names of contributors are printed in SMALL CAPITALS, and the page numbers of the contributions in full face type. In the case of authors reviewed the page numbers are in *italics*, and in the case of mention they are in Roman type.

INDEX OF SUBJECTS.